

UNDERSTANDING PHYSICAL ACTIVITY AMONG OLDER AFRICAN AMERICAN WOMEN:  
A MIXED-METHODS APPROACH

BY

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DISSERTATION

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## **ABSTRACT**

African Americans bear a disproportionate burden of chronic diseases and disabilities and present one of the highest prevalence of physical inactivity compared to other racial/ethnic groups. Older African American women are a particular vulnerable group for physical inactivity and consequent chronic disease. Physical activity at recommended levels has the potential to improve health and well-being, and prevent or delay the onset of chronic disease and disabilities. Studies have shown that different factors can facilitate and/or to prevent physical activity in different population and age groups. However, why African Americans present with higher rates of chronic disease compared with other racial groups as well as with lower levels of physical activity participation needs clarification.

The present study sought to explore the understanding of physical activity in older African American women and factors that contribute to their decision to be physically active or sedentary. Additionally, this study explored perceptions and reactions to current public health materials used to educate the general public about physical activity. In order to achieve these goals, a mix-methods design involving quantitative and qualitative data collection and analysis was employed to examine possible differences in the understanding of physical activity between active and inactive older African American women. In order to have a better understanding of the findings, this study was driven by the Socio Ecological Model of Health Behavior, which was supplemented by elements of health disparity literature.

Three themes emerged from the analysis of photos and in-depth interviews: (1) What Physical Activity Means to Me; (2) My Challenges; (3) My Community. Additionally, from the focus group discussion two themes emerged: (1) We May Have Trouble in Reading It; (2) It Does Not Reflect Us. The factors that negatively and positively influence physical

activity were similar among both active and inactive groups. Moreover, the factors influencing physical activity in this population are generally consistent with the Socio Ecological Model of Health Behavior and elements of the health disparity literature. In the focus group discussions, this study found that complex language, technical terminology, and unrepresentative activities were viewed as barriers that prevented a clear understanding or reception of messages used to promote physical activity.

*To my family... to my father (in memoriam), although his physical presence is no longer  
among us I am sure that wherever he is, he is proud of my accomplishments*

*“Se existe um porquê, então pode suportar todos os como” (Viktor Frankl; in portuguese)*

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## TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION .....	1
CHAPTER 2: LITERATURE REVIEW.....	16
2.1 Demographic Transition and Aging .....	16
2.2 Health and Chronic Disease among Older Adults .....	19
2.3 Physical Activity and Older Adults .....	27
2.4 Factors Influencing Physical Activity among Older Adults .....	32
2.5 Perception about Physical Activity .....	39
2.6 Physical Activity Assessment .....	40
2.7 Visual Methods in Qualitative Studies .....	44
2.8 Theories of Health Behavior.....	47
CHAPTER 3: METHODOLOGY .....	54
3.1 Research Design.....	54
3.2 Participants and Study Site.....	55
3.3 Data Collection.....	57
3.4 Data Analysis.....	60
3.5 Authenticity and Trustworthiness.....	62
CHAPTER 4: RESULTS .....	65
4.1 Participants' Demographic and Health Characteristics.....	65
4.2 Participants' Physical Activity Level.....	68
4.3 Identification of Major Themes .....	69
4.4 What Physical Activity Means to Me.....	69
4.5 My Challenges .....	76
4.6 My Friends, Family and Community.....	84



4.7 Focus Group: Public Health Messages.....	91
CHAPTER 5: DISCUSSION .....	99
5.1 Discussion .....	99
5.2 Implication for Public Health Practice .....	113
5.3 Strengths and Limitations of the Study .....	114
5.4 Suggestions for Future Studies .....	116
5.5 Conclusions .....	117
REFERENCES .....	119
APPENDIX A: Individual Interview Guide .....	147
APPENDIX B: Focus Group Discussion Guide.....	149

## **CHAPTER 1**

### **INTRODUCTION**

The exponentially growing number of the elderly population is a phenomenon experienced worldwide (WHO, 2011). In almost every single country the proportion of older adults is growing faster compared to any other age group. Driven by a decrease in fertility rates and significant increases in longevity, population aging will continue to accelerate (WHO, 2009). Indeed, the aging phenomenon can be attributed to a history of success of public health policies and socioeconomic development. The public health portion can be translated into improvements in hygiene, technological developments, and advances in medicine and health care systems (WHO, 2013b). However, along with the success of population longevity, come challenges to all sectors of society, especially regarding the health sector. In 2010, approximately 524 million people were age 65 years and over. This represents nearly 8% of the world's population. By 2050, this number is expected to triple to about 1.5 billion, representing 16 percent of the world's population (WHO, 2011). In addition, the number of older adults aged 65 years will soon outnumber the children under the age of five years old (WHO, 2011).

According to the United States 2010 census, persons 65 years and over in the United States numbered approximately 40 million (U.S Census, 2010). This represents 13% of the United States population, meaning that one in every eight Americans is in this age group (AOA, 2011). Along with the general trends for America's population, the African American or Black population is living longer. The African American or Black older population was computed to be about 3.3 million in 2010, and is projected to grow over 9.9 million by 2050. Currently, the African American older adult population (65 years and over) accounts for

approximately 8% of the older population; however, this number is expected to increase to 11% by the year of 2050 (AOA, 2011).

As both the proportion of older people and life expectancy increases worldwide, questions regarding health and quality of life of this population arise. Along with the demographic transition, the world also observed a shift in the leading causes of death. The pattern of diseases shifted from infectious diseases and acute illnesses to chronic diseases and degenerative illnesses (WHO, 2009). This phenomenon is called by demographers and epidemiologists as epidemiologic transition (McKeown, 2009). Currently, about 80% of older Americans are living with at least one chronic condition; 50% have at least two, and 60% are managing three or more prescription medications (Aldrich & Benson, 2008; CDC, 2011). Although the risk for disease and disability clearly increases with advancing age, poor health is not an inevitable consequence of aging and many older adults can be healthy and active well into late life.

Chronic diseases are non-communicable illnesses that require long-term care, do not resolve spontaneously, and are hardly ever cured completely (Chodosh et al., 2005; WHO, 2013b). Examples of chronic diseases include heart disease, cancer, stroke, hypertension, diabetes, and arthritis (Chodosh et al., 2005; WHO, 2011). Chronic disease can lead to limitations in daily activities, and therefore often reduce health-related quality of life in the older adult population (Caskie, Sutton, & Margrett, 2010). Furthermore, chronic diseases and conditions can cause loss of function and independence before resulting in death (He, Sengupta, Velkoff, & DeBarros, 2005). Death is only part of the broad picture of the burden of chronic disease to society. Such conditions in this age group represent an important health and economic burden to society. Although chronic diseases are the most common and costly of all health problems, they are also highly preventable and treatable (CDC,

2009). The burden of many chronic disease and conditions - especially hypertension, diabetes, and cancer - varies widely by race/ethnicity (Brancati, Kao, Folsom, Watson, & Szklo, 2000; Dressler, Oths, & Gravlee, 2005; Keppel, 2007). This study proposes to increase our understanding of how racial and ethnic factors interact to influence the development and progression of chronic diseases and conditions.

A few years ago, a major public health goal, not only in the United States but in the world, was to better understanding of factors influencing health disparities (Almeida-Filho, Kawachi, Filho, & Dachs, 2003; Woolf, Johnson, Fryer, Rust, & Satcher, 2004). Reducing health disparities was also one of the goals of the Healthy People 2010 initiative to improve public health in the United States (DHHS, 2000). Overall, in the 21 century, it is reasonable to say that Americans are in general healthier than in the past as a result of technological advances, preventive medicine, and broader access to health care; however some racial and ethnic groups are less healthy, receive poorer care, and cannot expect to live as long as others (Mills & Combs, 2002).

Healthy People 2020 define health disparity as “a particular type of health difference that is closely linked with social, economic, and /or environment disadvantage”. Therefore, subpopulations historically linked with discrimination or exclusion (racial/ethnic groups, religion, socioeconomic status, gender, age, or other characteristics) and which had systematically experienced constraints to health based are those more affected by health disparities (DHHS, 2010). According to the Center for Disease Control and Prevention, health disparities are preventable differences in the burden of disease, injury, violence, or in opportunities to achieve optimal health experienced by socially disadvantaged groups, and communities. In addition, health disparities result from multiple factors, such as: poverty,

environmental threats, and inadequate access to health care, individual and behavior factors, and educational inequalities (CDC, 2013a). Health disparities are present in all age groups, including older adults; and, although life expectancy and overall health have improved for Americans, not all older adults are benefitting equally because of factors such as race, economic status, and gender. According to the Office of Minority Health and Health Disparities (OMHD, 2007) there are continuing disparities in the burden of illness and death experienced by African Americans, Latinos and other minority groups.

In the United States, health disparities are well documented in minority populations. Compared to whites, these minority groups experience a higher incidence of chronic diseases, higher mortality, and poorer health outcomes (Ford, Giles, & Dietz, 2002; Thom et al., 2006). For instance, the rate of cancer incidence among African Americans is about ten percent higher than among whites (Ward et al., 2004). Additionally, adult African Americans along with Latinos have nearly twice the risk as whites of developing diabetes and higher rates of cardiovascular disease (Black, 2002; Mensah, Mokdad, Ford, Greenlund, & Croft, 2005). Obesity is also a concern in the African American population (Bleich, Thorpe, Sharif-Harris, Fesahazion, & Laveist, 2010). A study conducted by Flegal and colleagues (Flegal, Carroll, Ogden, & Curtin, 2010) found that in women, regardless of age, the prevalence of obesity and overweight in African Americans is higher compared to whites. A focus on disparities in health status is particularly important as major changes unfold the way in which health care is delivered and financed.

Chronic diseases and conditions are usually treated in two different ways. First, using traditional approaches that involve orthodox medical care with the use of medicines, therapies and in some cases surgery; and second, through lifestyle interventions. According

to Chodzko-Zajko and colleagues (Chodzko-Zajko et al., 2009), the epidemiological transition that has occurred over the past century calls for increased attention to the prevention of non-communicative diseases through lifestyle interventions. In recent years, the use of lifestyle/behavior change interventions such as physical activity and/or healthy eating has been advocated for the prevention and treatment of a large array of chronic diseases and conditions (Blair et al., 1996; Swinburn, Caterson, Seidell, & James, 2004; Thompson et al., 2003; Vuori, 2001).

Medical advances and improvements in public health practices, such as, sanitation and inoculations, have helped to increase life expectancy and have greatly improved the health of Americans in the past century. Since people are living longer, the number of individuals who experience higher rates of illness and disability is expected to increase dramatically. The need for medical care by the older adult population is often considerable. As previously mentioned, nearly 80% of older adults require ongoing care for at least one chronic condition, 50% have multiple chronic conditions, and 60% are managing three or more prescription medications (Aldrich & Benson, 2008; CDC, 2011). Even in the absence of chronic illness, older adults need to access medical care for acute conditions as they arise, as well as for extensive preventive care services recommended by evidence-based guidelines (e.g., annual influenza vaccination; screening for hypertension, hypercholesterolemia, and many cancers) (Fiore et al., 2010). Access to a range of health services, therefore, is critically important for preventing new illnesses, adapting therapies to changing needs, potentially reducing acute care costs, and ultimately for maintaining the health and well-being of the aging population (AHRQ, 2008; Bindman et al., 1995; Oster & Bindman, 2003). However, it is believed that about one-fourth of older adults have no supplemental insurance coverage for their health care needs (Rooks et al., 2008).

Additionally, preventive health screening rates are particularly low for different segments of the population, including older adults. Furthermore, health care facilities are often not accessible or do not have the necessary equipment to serve people with disabilities, common in the older adult population. Additionally, Rooks et al. suggest that older Blacks have significantly worse health care compared to Whites (Rooks et al., 2008).

Most of the chronic diseases and conditions affecting the older adult population are highly preventable or treatable with relatively low cost lifestyle/behavior changing interventions such as regular physical activity, nutrition and healthy eating, and by preventing risk factors like smoking, and alcohol abuse. Physical activity is strongly recommended for all ages even in the presence of chronic disease and other conditions. Among the benefits of physical activity are promoting health and well-being, delaying or preventing the onset of chronic disease and disability, and reducing mortality (Chodzko-Zajko et al., 2009; Hubert, Bloch, Oehlert, & Fries, 2002; Warburton, Nicol, & Bredin, 2006). For instance, Lee et al. investigating the relationship between physical activity and cardiovascular disease in women over 45, observed that even light-to-moderate activity is associated with lower cardiovascular heart disease rates in women (Lee, Rexrode, Cook, Manson, & Buring, 2001). Hamman and colleagues found that a lifestyle intervention using physical activity was effective in reducing the risk of diabetes (Hamman et al., 2006).

The Department of Health and Human Services states that in order to achieve health benefits adults should engage in at least 150 minutes a week of moderate-intensity physical activity (DHHS, 2008a). Despite the well-known benefits of physical activity and public health efforts to promote physical activity, participation rates are low especially among older adults (Dumith, Hallal, Reis, & Kohl, 2011; Fenton, 2005; Kohl et al., 2012; Troiano et al., 2008). It is known that physical activity is a dynamic and complex behavior that could

either be facilitated (facilitators) or prevented (barriers) by a large array of factors that are mainly related to personal and environmental dimensions of individuals (King et al., 2000). The presence of social support and facilities nearby, for example, has been reported as a facilitator to promote physical activity among older adults whereas poor health and lack of safety are frequently reported as barriers for engaging in physical activity among this population (Baert, Gorus, Mets, Geerts, & Bautmans, 2011).

Disparities in health behavior and disease between various segments of the population, such as racial and ethnic groups, have increasingly become a major focus of public health research, practice, and policy (Satia, 2009). A growing number of studies have attempted to explore different behaviors such as physical activity, healthy diet, alcohol consumption, and smoking in different ethnic groups. These behaviors seem to vary heavily among different ethnic groups (Galvan & Caetano, 2003; Mazas & Wetter, 2003; Satia, 2009; Vogel, 2002).

Regarding physical activity, a large number of American adults are considered insufficiently active and the problem appears to be worst among African Americans (Troiano et al., 2008). Solid evidence associates physical inactivity to morbidity and mortality (Blair & Brodney, 1999). Data from the Center for Disease Control and Prevention (CDC, 2007) shows that African American adults have the lowest prevalence of recommended levels of physical activity of all major race/ethnicity groups in the United States. Information from the Behavior Risk Factor Surveillance System (BRFSS, 2011) shows that the prevalence of physical activity (150 minutes/week) among adults aged 65 years and over is about 51%. Regarding race/ethnicity African American and Hispanics compose the least active group compared to Whites, 46.4 – 44.6% and 54%, respectively. Older African American women constitute a particularly vulnerable group for physical inactivity. It is not clear in the



literature why African Americans present with higher rates of chronic disease (especially cardiovascular diseases) and disease-related disability compared to other racial groups (Kington & Smith, 1997; Mendes de Leon, Gold, Glass, Kaplan, & George, 2001; Troxel, Matthews, Bromberger, & Sutton-Tyrrell, 2003). In addition, why African Americans have very low rates of physical activity participation needs more clarification (Crespo, Smit, Andersen, Carter-Pokras, & Ainsworth, 2000). A possible explanation could be related to public health messages. Public health messages attempting to promote health and well-being as well as physical activity in this population may have not been clearly interpreted or are not reaching the African American population. Therefore, African American - especially women, may be less responsive to public health messages.

Reduced access to care is a major contributor to health disparities in African American communities (Parrish & Kent, 2008). It is believed that decreased access to health services among African Americans contributes significantly to health disparities across a variety of conditions and health outcomes (Mayberry, Mili, & Ofili, 2000). Although the definition of access to care may vary, generally it could be defined as the availability of care that is needed by a patient (Parrish & Kent, 2008). In line with the aforementioned, there is evidence to suggest that race/ethnicity influence a patient's chance of receiving many specific procedures and treatments (AHRQ, 2013). Uninsured African Americans, for example, are less likely to receive preventive care, screening services, and appropriate acute or chronic disease management, and they are more likely than insured individuals to have poorer overall health (Minority Health, 2006; Rooks et al., 2008).

Different reasons for why African Americans have less access to health care compared to other race/ethnic groups have been documented in the literature (LaVeist, Nickerson, & Bowie, 2000; Mays, Cochran, & Barnes, 2007; Schneider, Zaslavsky, & Epstein,

2002). Among them, health literacy emerges as an important issue in health care utilization among older adults. A study conducted by Scott et al. suggests that inadequate health literacy is independently associated with lower use of preventive health services (Scott, Gazmararian, Williams, & Baker, 2002). Health literacy, is defined as “the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions” (Parker, Ratzan, & Lurie, 2003). Health Literacy was found to be associated with level of education, age and ethnicity (Paasche-Orlow, Parker, Gazmararian, Nielsen-Bohlman, & Rudd, 2005). The percent of African Americans reporting adequate health literacy is considerably lower compared to Whites (Wolf, Gazmararian, & Baker, 2005). This is important because individuals with inadequate health literacy have reported significantly poorer physical and mental health functioning and greater limitations in routine activities. In addition, the magnitudes of the observed associations were large and therefore, clinically important (Wolf et al., 2005).

There is compelling evidences in the literature on the physical and psychological benefits of physical activity (Chodzko-Zajko et al., 2009). Physical activity in a regular basis has also been recommended for older adults with clinically significant chronic conditions or functional limitations (Nelson et al., 2007). However, the solid evidence on the benefits of physical activity for the older adult population has unfortunately not resulted in large numbers of older adults initiating and sustaining active lifestyles. In addition, studies attempting to assess barriers and facilitators to physical activity appear suggest that it is not a simple matter to help people to become more active. It is important to better understand how different racial/ethnic groups conceptualize physical activity. Understanding physical activity in different racial/ethnic groups, such as African Americans will assist in the development of tailored strategies and interventions to promote health, well-being and

physical activity that may have a higher impact on this population. Previous research suggests that older African Americans may conceptualize physical activity differently and therefore, may be less responsive to public health messages regarding this behavior. Studies aiming to explore perceptions about physical activity among different ethnic and cultural groups are of great importance within the public health scenario. Such studies can help public health professionals develop tailored strategies focusing on promoting physical activity that may have a greater impact in specific populations. A few studies can be found in the literature that have explored perceptions of physical activity in the African American older adult population (Affuso, Cox, Durant, & Allison, 2011; Harley, Odoms-Young, Beard, Katz, & Heaney, 2009; Lavizzo-Mourey et al., 2001; Wilcox, Oberrecht, Bopp, Kammermann, & McElmurray, 2005). For instance, Wilcox et al. (Wilcox et al., 2005) studied the understanding of the term physical activity and exercise in underactive older African American and White women living in a rural area of South Carolina. The authors observed that the concept of physical activity is viewed as a broader concept than exercise. Additionally it was observed that older adults in their study are often confused regarding their understanding of physical activity. Similarly, Lavizzo-Mourey et al. (Lavizzo-Mourey et al., 2001) also observed discrepancies in the concept of exercise when studying beliefs and attitudes towards exercise in African Americans living in urban communities.

Although important, such studies present several limitations, which may compromise the conclusions drawn. Most of the studies were conducted using a single group. It is important to study both active and inactive individuals to increase our understanding of why some African American women are more active than others. Furthermore, to date, those studies that have included two groups (active and inactive) have almost always used self-reported physical activity information to categorize

participants as active or sedentary. It is known that self-report questionnaires overestimate physical activity level, mainly due to recall bias or due to problems understanding the terms moderate/vigorous physical activity and bouts of at least 10 minutes (used for example in the widely used physical activity questionnaire – IPAQ). In addition, the studies using a qualitative approach based on focus groups may lose important information due to the nature of the assessment; likewise the studies that assessed facilitators and/or barriers using simple questionnaires. In order to overcome such limitations, it would be important to use more powerful techniques and instruments to address such factors (e.g. photo elicitation technique, individual in-depth interviews, and accelerometers).

For a long period of time, research methodology has been a central point of discussion among scholars (Firestone, 1987). Both quantitative and qualitative approaches have been used to help researchers to answer a variety of different research questions. Quantitative approaches can be divided mainly into two categories: observational (e.g. prospective cohort studies) or experimental (e.g. randomized controlled trials). Randomized controlled trials as a design is believed to be the top of the hierarchy of quantitative designs (Aschengrau & Seage, 2008) and the dominance of this research design is central to the development and validation of new practices and ideas (Grossman & Mackenzie, 2005). However, randomized controlled trials are not appropriate at all times. In certain situations randomized controlled trials are not the best choice to answer certain research questions (Allmark & Mason, 2006; Grossman & Mackenzie, 2005). One strength of quantitative approaches lies in the fact that overall findings can be used to infer to the whole population (Polit & Beck, 2010). On the other hand qualitative approaches are employed to shed light into a phenomenon that cannot be easily explained using a quantitative approach. Although the power of generalization of results in the qualitative approach is less (and generalization

is not the purpose of qualitative studies), by using a qualitative approach, the researcher has the opportunity to investigate in-depth a given phenomenon in a specific population.

Therefore, the goal of qualitative studies is to provide a rich and contextualized understanding of human experience through the intensive study of particular cases (Polit & Beck, 2010). Thus, the results can be used to produce new research questions for follow-up using quantitative methods. One of the strengths of the present study will be the use of a mixed-method design that will employ both quantitative and qualitative elements to answer the research questions and overcome some of the limitations presented in previous studies.

Photo elicitation is a research technique that invites participants to take photographs of significant features in their lives that are both personally meaningful and possess significant explanatory power. According to Harper photo elicitation is a research technique based on the simple idea of inserting a photograph into a research interview (Harper, 2002). The photo elicitation technique has recently been successfully employed in a few physical activity studies to explore attitudes, beliefs, and preferences around physical activity topics in the Latino population (Fleury, Keller, & Perez, 2009) and other different purposes, such as nutrition and diet (Johnson, Sharkey, McIntosh, & Dean, 2010). Among the different methods of data collection within the qualitative approach, individual interviews are often considered the “gold standard” of qualitative data collection methods (Lambert & Loiselle, 2008).

With respect to the assessment of physical activity, both questionnaires and direct assessment using accelerometers are commonly used. Accelerometers are devices that directly measure physical activity levels during daily activities. Such devices have been successfully used in the older adult population, and it has been proven to provide valid and reliable estimates of physical activity levels (Harris et al., 2009; Plasqui & Westerterp, 2007).

For better understanding of a given behavior, studies employing a qualitative approach are often grounded into a certain theory. Theories help researchers to acquire and interpret the information collected in a study by providing the framework necessary to comprehend a given phenomenon (DiClemente & Crosby, 2011; Glanz, Rimer, & Viswanath, 2008). There are a number of different theoretical approaches in the literature regarding behavior change (DiClemente & Crosby, 2011). The present study adopted the Social Ecological Theory of Health Behavior as the main theoretical framework (Stokols, Allen, & Bellingham, 1996). This theory suggests that individual's behavior is part of a complex interaction between the individual, the environment, and community in which they live (Sallis et al., 2006). Ecological approaches (multilevel) are believed to be more explanatory compared to single-level approaches and are representative of the new public health (DiClemente & Crosby, 2011). Ecological approaches are better applied within complex behaviors such as physical activity. The figure 1 below depicts in detail the levels taken into account by the model.



**Figure 1.** Representation of the Social Ecological Model of Health Behavior

Supplementing the Social Ecological Model of Health Behavior, the present study addressed elements of the health disparity literature to explore factors influencing health-related behaviors of African-Americans. Factors such as the legacy of slavery, segregation,

racism (Boulware, Cooper, Ratner, LaVeist, & Powe, 2003; Corbie-Smith, Thomas, & St George, 2002), lack of regular institutional resources (Rankin & Quane, 2000), stress, and social and environmental exposure (Gee & Payne-Sturges, 2004; Thorpe, Brandon, & LaVeist, 2008), residential segregation (Gaskin, Dinwiddie, Chan, & McCleary, 2012) have been used to explain health disparity related higher rates of diseases in African Americans. However, there is no single study in the literature that attempted to include elements of the health disparity literature to help understanding physical activity behavior in the African American population. This is a unique feature of the present study. The older adult population is growing exponentially. Chronic diseases and conditions are highly prevalent in the older adult population. Health disparities are a public health concern. There was a shift in the focus to prevent and treat chronic disease, from classical medical approaches to lifestyle interventions such as physical activity. Physical activity participation rates are low in older adults and lower in African American women compared to other racial groups. Understanding physical activity in different race/ethnic groups is a step forward to develop new strategies and interventions to promote physical activity that may be more impactful.

The present study was designed to explore the understanding of physical activity in older African American women and factors that contribute to their decision to be physically active or sedentary. Our goal was to explore perceptions, attitudes and values about physical activity in older African American women. To accomplish these goals the present study explored: (1) older African American women's understanding of the term physical activity; (2) their interpretation of the socio-cultural contexts in which they chose (or chose not) to be physically active, and; (3) their visualization of physical activity opportunities and barriers in their local environment. Additionally, perceptions and reactions to current public health materials used to promote physical activity were evaluated through focus group

discussions. A mixed-method designed was employed. The qualitative portion was conducted using a community-based participatory approach known as photo elicitation followed by in-depth individual interviews. The quantitative portion relied on directly measuring physical activity levels with the use of accelerometers. Photo elicitation was done by giving the participants a disposable camera to take pictures of meaningful places in their daily life that are related to being active, as well as things that they do, and people they interact with in their daily life. The idea is to see the “world” through participant’s eyes. This procedure along with the in-depth interview enabled us to better comprehend their understanding of physical activity, and identify possible barriers as well as facilitators for physical activity in this population. Accelerometry was employed to directly measure physical activity. The accelerometer data were used to identify participant’s levels of physical activity and therefore, observe whether the understanding of physical activity, barriers, and facilitators vary between those classified as active (meeting the criteria of 150 minutes per week) and those classified as sedentary (not meeting the criteria of 150 minutes per week).



## **CHAPTER 2**

### **LITERATURE REVIEW**

This study explored the understanding of physical activity in older African American women and factors that contribute to their decision to be physically active or sedentary. The review of the literature is composed of the following sections: (1) demographic transition; (2) health and chronic disease among older adults; (3) physical activity and older adults; (4) factors influencing physical activity among older adults; (5) physical activity assessment; (6) visual methods in qualitative studies and; (7) applicable theories of health behavior.

#### **2.1 Demographic Transition and Aging**

##### **2.1.1 Definition of Aging**

Aging is a complex process experienced by all human beings that is difficult to fully understand and no single definition can adequately explain this process (Arking, 2006; Schwingel, 2013). Although it is common to define aging according to length of years lived, such a definition may be incomplete because the rate at which people age can vary from person to person (Schwingel, 2013). In a broader perspective, aging has been defined as the biological, psychological, and social changes that occur throughout the lifespan. Spirduso and colleagues defined aging as an inevitable process or processes occurring in living organisms that leads to a loss of adaptability, functional impairment, and eventually death (Spirduso, Francis, & MacRae, 2005). Adopting a social gerontological perspective, Hooyman and Kiyak state that aging reflects changes that take place in the organism throughout the lifespan where some of them are good, bad, and neutral (Hooyman & Kiyak, 2008).

According to Chodzko-Zajko and colleagues there is no consensus in the aging literature regarding when old age starts and no solid directions about the minimum age of participants

in studies that explore the different aspects of the aging process (Chodzko-Zajko et al., 2009). However, this study will adopt the World Health Organization criteria of 65 years as the starting point of old age for developing countries (WHO, 2013a).

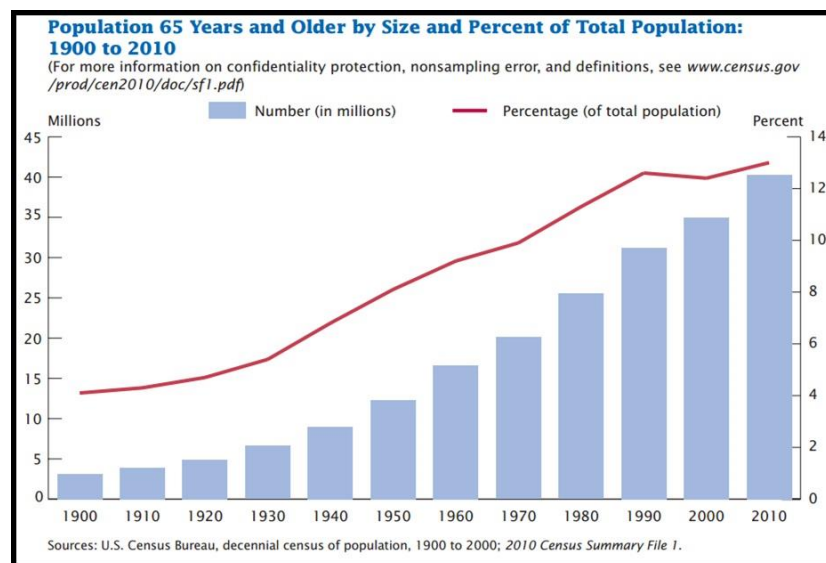
### **2.1.2 Demographic Changes**

The world is on the edge of a demographic landmark. Since the beginning of recorded history, young children have outnumbered their elders. However, it is estimated that, in about five years, the number of people aged 65 or older will outnumber children under age 5 (WHO, 2011). Decreasing fertility rates and increasing life expectancy are considered the main factors responsible for the population aging phenomenon. According to the World Health Organization, people aged 65 or older were estimated to number approximately 524 million in 2010. This represents nearly 8% of the world's population. Projections for 2050 reveal that this numbers will increase to nearly 1.5 billion, representing 16% of the world's population (WHO, 2011).

The current growth in the number and proportion of older adults in the United States is unprecedented. The rapid aging of the United States population is being driven by two realities: Americans are living longer lives than in previous decades and, given the post-World War II baby boom; there are proportionately more older adults than in previous generations. Together, these factors will be responsible for doubling the population of people aged 65 years or older during the next 25 years to about 72 million. By 2030, older adults will account for roughly 20% of the United States population (CDC, 2013b).

The 65 years and over population is an important and growing age group in the United States. According to the last census, more people were 65 years and over in 2010 compared to any previous survey, numbering nearly 40 million (U.S Census, 2010). This represents 13% of the United States population, meaning that 1 in every 8 Americans is in

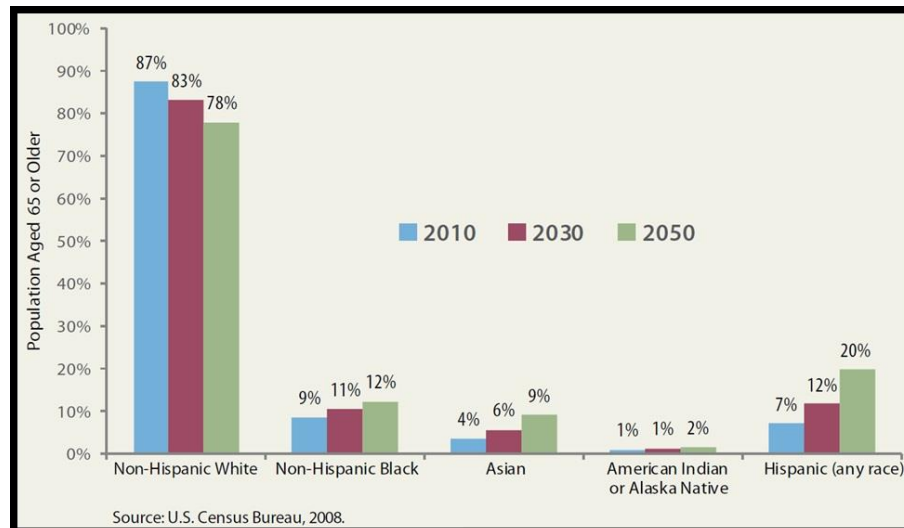
this age group (AOA, 2011). The figure 1 below depicts the growth of the older adult population in the United States over the past century.



**Figure 2.** The growth of the U.S older adult population (65 years and over) from 1900 to 2010.

Along with these general trends for America’s population, the United States will face a significant increase in racial and ethnic diversity during the next several decades (CDC, 2013b). Although young people in the United States currently reflect diversity more markedly compared to their older counterparts, the racial and ethnic proportion of older adults is also changing. In 2010, approximately 80% of adults aged 65 years or older in the United States were Whites. Projections to 2030 shows that the percentage will decline, and older White adults will compose about 71.2% of the population, whereas Hispanics will make up 12%, African Americans nearly 10.3%, and Asians 5.4%. By 2050, the racial and ethnic diversity of older United States adults will dramatically change. Older White adults, long deemed the “majority population,” will account for only about 58% of the total population aged 65 or older, a decline of more than 20% from 2010. During the same period, the proportion of older Hispanics will almost triple—from 7% in 2010 to nearly 20%

in 2050. The proportion of older Asian-Americans will more than double during 2010–2050, from 3.3% to 8.5%, and the proportion of older African-Americans will increase from 8.3% to 11.2% (US Census, 2012). The figure 2 below displays the older adult United States population in 2010 and projection for 2030 and 2050.



**Figure 3.** United States population aged 65 years or older and diversity, 2010–2050

## 2.2 Health and Chronic Disease among Older Adults

### 2.2.1 Overview of the Older Adult Population

“Are we living healthier as well as longer lives, or are our additional years spent in poor health?” (WHO, 2009). A study conducted in 2006 sponsored by the U.S. National Institute on Aging found surprising health differences between Whites aged 50 to 74 years old in the United States and England. Americans reported worse health compared to European adults as indicated by the presence of chronic diseases and by measures of disability. At all levels of socioeconomic status, Americans were less healthy than their European counterparts (WHO, 2009).

During the twentieth century, effective public health strategies and advances in medical treatment contributed to a dramatic increase in average life expectancy among the

population. However, such success comes along with challenges to different sectors of the society. For instance, during the past century, a shift in the leading causes of death has occurred for all age groups, including older adults, from infectious diseases and acute illnesses to chronic diseases and degenerative illnesses. It is estimated that two out of three older adults have multiple chronic conditions, and treatment for this population accounts for 66% of the country's health care budget. In addition, about 80% of older Americans are living with at least one chronic condition; 50% have at least two, and 60% are managing three or more prescription medications (Aldrich & Benson, 2008; CDC, 2011).

The prevalence and patterns of diseases among the population has changed. By 1910, in general, heart disease became the leading cause of death every year. Since 1938, cancer has held the second position every year. Heart disease and cancer pose their greatest risks as people age, as do other chronic diseases and conditions, such as stroke, chronic lower respiratory diseases, Alzheimer's disease, and diabetes (CDC, 2013b).

Using a cross-sectional design, Wolf et al. assessed more than 1.2 million older adults (65 and over) to increase our understanding of the prevalence, expenditures, rates of hospitalization for ambulatory care sensitive conditions, and the frequency of preventable complications among Medicare beneficiaries with multiple chronic conditions. The authors found that 82% of Medicare beneficiaries reported one or more types of chronic disease. Additionally it was observed that the prevalence of chronic conditions increased with age from 74% of those aged 65 to 69 years to 88% in those aged 85 years and older. Within each age stratum, females were found to be more likely than males to have a chronic illness. Furthermore, Wolf et al. found that about 65% of their participants reported two or more types of chronic conditions; 43% of the participants reported 3 or more and; 24% reported 4 or more chronic conditions.. On average study participants presented 2.34 types of chronic

conditions, increasing by age from 1.88 for those between 65 to 69 years to 2.71 types of chronic condition among participants aged 85 years and older (Wolff, Starfield, & Anderson, 2002).

In 2000 the National Council on Ageing and Older People conducted a study aiming to provide a systematic evaluation of health and social service provision for older people living in the community. A total of 937 people completed the interview. The group ranged in age from 65-99 years, with one third aged 65-69 years and less than 10% aged 85 years or older. The authors observed that although only 8% of their sample rated their quality of life as poor, the prevalence of chronic diseases and condition was high. Only 14% of the entire sample reported being free from any illness or condition in the past year. A further 21% reported having only 1 condition, while 20% reported 2 chronic conditions. The total number of illnesses per respondent ranged from none to sixteen. Among the most reported conditions are: bone or joint conditions (46%); hypertension (36%) and; cardiac conditions (20%).

Hypertension is a concern among the older adult population because it is a risk factor for coronary heart disease and the single most important risk factor for stroke. Ong and colleagues (Ong, Cheung, Man, Lau, & Lam, 2007) using the National Health and Nutrition Examination Survey 1999–2004 database, examined the trends in the prevalence, awareness, treatment, and control of hypertension in the United States in the period 1999–2004. The authors analyzed information on more than 14,500 individuals. Among them, about 3 thousand were aged 60 years and over. The authors observed that among the participants aged 60 years and over, the prevalence of hypertension increased from 64.2% in 2000 to 66.3% in 2004 (Ong et al., 2007).

Diabetes is another common chronic disease affecting the older adult population. For instance, Mokdad and colleagues investigated the prevalence of diabetes among United States adults. Using data gathered in 2000 from the Behavioral Risk Factor Surveillance System, the authors analyzed information of more than 184,000 people aged 18 years and over. For the age group between 60 to 69 years old, the prevalence of diabetes was about 14.5%. For those aged 70 years and over the prevalence of diabetes was found to be slightly high, nearly 15%. These rates were found to be higher compared to young age groups in the same study (Mokdad et al., 2001).

### **2.2.2 Health Disparities among African Americans**

The previous overview on health and chronic diseases among the older adult population raises a concern not only for individuals but also for society. However, it is important to note that according to the Office of Minority Health and Health Disparities there are continuing disparities in the burden of illness and death experienced by African Americans, Latinos and other minority groups (OMHD, 2007). Although there has been significant progress in the diagnosis and treatment of many diseases, studies have shown that African Americans still bear a disproportionate burden in high rates of disease morbidity (hypertension, diabetes, cardiovascular disease, and stroke) , mortality, disability, and injury compared to other racial and ethnic group (Adler & Newman, 2002; Kelley-Moore & Ferraro, 2004; MMWR, 2005; Ostchega, Dillon, Hughes, Carroll, & Yoon, 2007; Sundquist, Winkleby, & Pudaric, 2001; D.R. Williams & Collins, 1995). For instance, information published by the Centers for Disease Control and Prevention (CDC, 2011) depicted that in the United States nearly 30% of the population age 65 years and over has diabetes. Among them African Americans present the highest prevalence compared to Whites, 18.7% and

10.2%, respectively. In addition, other health issues appear to be highest in the African American population. For example, African Americans seem to have a disproportional high level of disabilities compared to Whites (Kelley-Moore & Ferraro, 2004; Whitson et al., 2011).

In 1985 the Task Force on Black and Minority Health released a report on the major factors that contribute to the health status of Blacks, Hispanics, Asian/Pacific Islanders, and Native Americans (Heckler, 1985). The report found that the health status of African Americans was significantly worse compared to their White counterparts. The findings of the report were consistent with findings from several other studies. For instance, in 1990, McCord and Freeman combined data from census and from the Bureau of Health Statistics and Analysis of the New York City Health Department to estimate the amount, distribution, and causes of excess mortality in the New York City community of Harlem. The authors' findings astonished the world. McCord and Freeman reported that the African American male in Harlem was less likely to reach the age of 65 than the average male resident of Bangladesh—"one of the poorest countries in the world" (McCord & Freeman, 1990).

Health disparities are defined as negative health differences experienced by underserved populations resulting from multiple factors, such as: poverty, environmental threats, and inadequate access to health care, individual and behavior factors, and educational inequalities (CDC, 2013a; DHHS, 2010). Health disparities are present in all age groups, including older adults; and, although life expectancy and overall health have improved, not all older adults are benefitting equally because of factors such as race, economic status, and gender. Indeed, health disparities are well documented in minority populations. Studies have shown that compared to whites, these minority groups



experience higher incidence of chronic diseases, mortality, and poorer health outcomes (Ford et al., 2002; Thom et al., 2006).

Diseases like diabetes, cardiovascular heart disease, hypertension, and obesity disproportionately affect African Americans (Adler & Newman, 2002; Davis, Liu, & Gibbons, 2003; Mensah, Mokdad, Ford, Greenlund, & Croft, 2005). For instance, Mensah and colleagues (Mensah et al., 2005) used data from national surveys to determine cardiovascular disease risk factor prevalence and indexes of morbidity, mortality, and overall quality of life in adults over the age 18 years by race/ethnicity, sex, education level, socioeconomic status, and geographic location. The authors found that African American women with or without a high school education had a high prevalence of obesity (47.3%). Hypertension prevalence was found to be higher among African Americans (39.8%) regardless of sex or educational status compared to other racial groups. Heart failure hospitalization was higher in African Americans, Hispanics, and American Indians/Alaska Natives than among Whites. Stroke hospitalization was highest in African Americans. Additionally, cardiovascular disease mortality at all ages tended to be highest in African Americans. Furthermore, the authors observed that life expectancy remains higher in women than men and higher in Whites than African Americans by 5 years. In line with the findings found by Mensah and colleagues, Ostchega and colleagues (Ostchega et al., 2007) also observed a gap in the rates of hypertension between African Americans and Whites. Examining the trends of hypertension in the United States population, the authors observed that approximately 70% of United States adults aged 60 years and old are hypertensive and that both African American men and women had higher prevalence of hypertension compared to Whites.

Obesity is a risk factor for many types of chronic diseases and in the African American population obesity is also a concern (Kelley-Moore & Ferraro, 2004; Sundquist et al., 2001). Flegal and colleagues (Flegal et al., 2010) examined the trends in obesity from 1999 through 2008 and the prevalence of obesity and overweight for 2007-2008. The authors analyzed the body mass index values from more than 5 thousand adults aged 20 years or older obtained in 2007-2008 as part of the National Health and Nutrition Examination Survey, a nationally representative sample of the United States population. Data from the NHANES obtained in 2007-2008 were compared with results obtained from 1999 through 2006. The authors found that in women, regardless of age, the prevalence of obesity and overweight in African Americans is higher compared to Whites. The prevalence of overweight for White woman was found to be around the 62% compared to 78% of African Americans. An obesity prevalence of 33% for White woman was observed compared to almost 50% in African Americans.

In 2009 McFayden Jr. (McFayden Jr, 2009) examined factors which may contribute to disparities in the treatment, diagnosis and mortality rates between African Americans and other racial and ethnic groups in the United States. The data suggested that African American were more prone to a higher incidence of numerous chronic diseases and illnesses. A review conducted of this study clearly identifies higher rates of cancer incidence for both male and female African Americans. African Americans are almost twice as likely to acquire cancer in every major cancer category (stomach, cervical, lung, prostate, colon and rectum, breast, etc.).

Evidence of the higher prevalence of chronic diseases and conditions in the African Americans population compared to other racial/ethnic groups appears to be vast in the

literature. However, remains unclear why African Americans present higher rates of chronic disease and disease-related disability compared to other racial groups. Different models have been proposed to the explanation of health disparities. Dressler and colleagues identified four general models in the literature to explain health disparities. This includes: racial-genetic model; health-behavior model; socioeconomic status model; and social structural model (Dressler et al., 2005). In addition, it is believed that social context and environmental conditions play an important role in producing and maintaining health disparities (Gee & Payne-Sturges, 2004; Thorpe et al., 2008). For instance, Thorpe and colleagues (Thorpe et al., 2008) examined the association between race and hypertension in a sample of African American and non-Hispanic White adults with similar income status, dealing in the same social context. The authors concluded that social and environmental exposures explained a substantial proportion of the race difference in hypertension. Moreover, when non-Hispanic Whites and African Americans live in similar social settings, their health outcomes are much more similar; however with still disadvantage to African Americans.

Similarly, Gee and Payne-Sturges suggested that health disparities are a function of the environment (Gee & Payne-Sturges, 2004). Driven by the Stress-Exposure Disease Framework the authors suggest that minority neighborhoods tend to have higher rates of mortality, morbidity, and health risk factors compared with white neighborhoods, even after accounting for economic status and other characteristics. Furthermore, factors such as social and environmental segregation, psychosocial stress, lack of regular public resources available, the legacy of slavery, segregation and discrimination have been considering important factors for the understanding or explanation of health disparities among African Americans (Gaskin, Headen, & White-Means, 2005). In summary, understanding

racial/ethnic health disparities demands a careful examination of all groups in all societies in which such disparities exist.

## **2.3 Physical Activity and Older Adults**

### **2.3.1 Benefits of Physical Activity**

According to Chodzko-Zajko et al. (Chodzko-Zajko et al., 2009) the epidemiological transition that has occurred over the past century calls for increased attention to the prevention of non-communicative diseases through lifestyle interventions. Most of the chronic diseases and conditions affecting the older adult population are highly preventable or treatable with relatively low cost lifestyle/behavior changing interventions such as regular physical activity. Physical activity affects many health conditions, and the specific amounts and types of activity that benefit each condition vary. The benefits of physical activity occur in healthy people, in people at risk of developing chronic diseases, and in people with current chronic conditions or disabilities (DHHS, 2008b; Nelson et al., 2007). The Department of Health and Human Services recommends that every adult should engage in at least 150 minutes per week of moderate to vigorous intensity physical activity in order to achieve health benefits (DHHS, 2008a). However, it is important to note that additional amounts of activity provide additional benefits. Among the benefits of physical activity are promoting health and well-being, delaying or preventing the onset of chronic disease and disability, and reducing mortality (Chodzko-Zajko et al., 2009; Hubert et al., 2002; Warburton et al., 2006)

Researchers have focused on both exercise and physical activity. Although most of the time, these terms are used interchangeably, exercise reflects a subcategory of physical activity that is planned, structured, repetitive, and is performed to improve or maintain

either health or fitness (Caspersen, Powell, & Christenson, 1985; Chodzko-Zajko et al., 2009). Physical activity has been defined as any bodily movement produced by the skeletal muscles that result in increased energy expenditure (Caspersen et al., 1985; Chodzko-Zajko et al., 2009). However, although all exercise is physical activity, not all physical activity is exercise. Studies have examined the role of physical activity in different populations, including older adults, to examine the role physical activity plays in a variety of health outcomes such as: premature death; diseases such as coronary heart disease, stroke, some cancers, type 2 diabetes, osteoporosis, and depression and; risk factors for disease, such as high blood pressure and high blood cholesterol (DHHS, 2008b).

Some of the benefits of physical activity for adults and older adults are listed in table 1. In order to better visualize such benefits they are shown here in three different categories based on the Physical Activity Guidelines Advisory Committee Report (DHHS, 2008a).

**Table 1.** Health benefits of physical activity for adults and older adults.

Strong evidence	Moderate-strong evidence	Moderate evidence
<ul style="list-style-type: none"> <li>• Lower risk of early death</li> <li>• Lower risk of coronary heart disease</li> <li>• Lower risk of stroke</li> <li>• Lower risk of high blood pressure</li> <li>• Lower risk of adverse blood lipid profile</li> <li>• Lower risk of type 2 diabetes</li> <li>• Lower risk of metabolic syndrome</li> <li>• Lower risk of colon cancer</li> <li>• Lower risk of breast cancer</li> <li>• Prevention of weight gain</li> <li>• Weight loss, particularly when combined with reduced calorie intake</li> <li>• Improved cardiorespiratory and muscular fitness</li> <li>• Prevention of falls</li> <li>• Reduced depression</li> <li>• Better cognitive function (for older adults)</li> </ul>	<ul style="list-style-type: none"> <li>• Better functional health (for older adults)</li> <li>• Reduced abdominal obesity</li> </ul>	<ul style="list-style-type: none"> <li>• Lower risk of hip fracture</li> <li>• Lower risk of lung cancer</li> <li>• Lower risk of endometrial cancer</li> <li>• Weight maintenance after weight loss</li> <li>• Increased bone density</li> <li>• Improved sleep quality</li> </ul>

### **2.3.2 Prevalence of Physical Activity among Older Adults**

Despite the well known benefits of physical activity for all people (Chodzko-Zajko et al., 2009) participation rates are extremely low among the older adult population (Barnes & Schoenborn, 2003; BRFSS, 2011; Troiano et al., 2008). For instance, Troiano and colleagues using results from the 2003-2004 National Health and Nutritional Examination Survey described physical activity levels of children, adolescents, and adults, from a representative sample of the United States population. By examining the information on physical activity measured by counts from over 11 thousand participants, the authors found that both males and females, aged 60 years and over, were the least active group compared to their young counterparts (Troiano et al., 2008).

Data from the Behavioral Risk Factor Surveillance System (BRFSS, 2011), a cross-sectional telephone survey conducted by state health departments, shows nearly 50% of the participants, aged 55 years and over, do not achieve the recommendations of 150 minutes per week of physical activity. Barnes and Schoenborn examined the prevalence estimates for overall physical activity among United States adults, using data from the 2000 National Health Interview Survey. According to the authors, more than 32,000 individuals were interviewed and successfully completed the survey. Overall, the authors observed that among the individuals aged 65 years and over, 22.5% were considered inactive during usual daily activities and never engage in leisure time physical activity; 15.8% were considered moderately active and engage in some irregular leisure-time physical; 27.9% were considered very active during usual daily activities and engage in some leisure-time physical activity; 18.4% were considered very active during usual daily activities and engaged in regular leisure-time physical activity and; 15.3% were considered very active during usual

daily activities and engaged in frequent leisure-time physical activity (Barnes & Schoenborn, 2003).

### **2.3.3 Physical Activity among Older African American**

Although physical activity level is also a concern among the older adult population, physical activity largely varies among different race groups. Data from the Behavioral Risk Factor Surveillance System, shows that African Americans and Hispanics compose the least active group compared to Whites, 54 – 56% and 49%, respectively (BRFSS, 2011). A study conducted by Troiano and colleagues (Troiano et al., 2008) also provides an excellent visualization of the patterns of physical activity among different race/ethnic groups. Using a large set of data from the National Health and Nutrition Examination Survey, the authors found that among the race groups analyzed, both older male and female (60 years and over) African Americans present the highest prevalence of physical inactivity compared to other race groups in their sample. Additionally, older African American women constitute a particularly vulnerable group for physical inactivity. Findings from this study show that the mean counts per minute of physical activity for older African American males were 215.4 compared to 221.6 of male Whites; African American women presented a mean counts per minute of 192 compared to 208.7 of female Whites.

In line with the previous findings, Whitt-Glover and colleagues (Whitt-Glover, Taylor, Heath, & Macera, 2007) presented a descriptive analysis of self-reported physical activity among African American adults using data from the 2003 Behavioral Risk Factor Surveillance System, the 2004 National Health Interview Survey and, the 1999–2004 National Health and Nutrition Examination Survey. Information on about 27 thousand participants aged 18 years and older from 4 different regions of the United States was examined. Regarding older



African Americans aged 65 and over (nearly 3,200 participants), only 28% of men and 23% of women reported being physically active for at least 30 minutes per day for 5 or more days of the week.

Crespo and colleagues (Crespo et al., 2000), observed a large variance among race/ethnic groups regarding leisure time physical activity. In their study, the authors estimated of the prevalence of physical inactivity during leisure time and its relationship to race/ethnicity and social class. A sample of over 18,000 adults aged 20 years and older was analyzed. According to the authors, the age-adjusted prevalence (per 100) of adults reporting leisure time inactivity was lower among Whites (18%) compared to African-Americans (35%) and Mexican-Americans (40%). African and Mexican-American men and women reported higher prevalence of leisure time inactivity compared to their counterparts- Whites across almost every variable, including education, family income, occupation, employment, poverty and marital status. Examining the prevalence of leisure-time physical inactivity only in the older adults included in the study, it was observed that approximately 60% of older African American women aged 60 to 69 were considered inactive during leisure-time. The prevalence is higher (nearly 75%) for the same population in advanced ages (80 and over).

## **2.4 Factors Influencing Physical Activity among Older Adults**

### **2.4.1 Barriers for Physical Activity**

According to Schutzer and Graves, physical activity is a complex and dynamic process involving an interconnected series of behaviors and, the identification of the variables affecting physical activity adherence is often difficult (Schutzer & Graves, 2004). Numerous factors facilitate, challenge, and prevent individuals from engaging in regular physical

activity (Jones, 2003). Factors that prevent or make it difficult to engage in physical activity are named barriers (Cohen-Mansfield, Marx, & Guralnik, 2003). Barriers can be defined as any reason or excuse that prevents individual from initiating or maintaining physical activity (Sallis & Owen, 1999).

For instance, O'Neill and Reid (O'Neill & Reid, 1991) investigated the perceived barriers to physical activity in almost 200 healthy independent older adults. Participants in their study reported as many as 17 barriers to physical activity. Additionally, the authors observed that 87% of the participants reported at least one barrier that prevents them from participating in physical activity. Gobbi and colleagues (Gobbi et al., 2012) explored perceived barriers to physical activity in 359 community dwelling adults (60 years and over) and found that 100% of the participants, regardless of age group and gender, reported at least one barrier to physical activity engagement. Participants in the Gobbi and colleagues study reported that they feel they are active enough already, the necessity to relax during free time, and fear of falling and get hurt.

Schutzer and Graves listed numerous factors that can pose as barriers for the older adult population (Schutzer & Graves, 2004). These factors include: health issues, environment, physician advice, knowledge and, childhood experience. According to the authors and supported by other studies in the literature (Cohen-Mansfield et al., 2003), the older adult population most frequently cite poor health as the leading barrier to both physical activity and exercise. Indeed, health motives in older adults become increasingly more prevalent with increasing age (Schuz, Wurm, Warner, Wolff, & Schwarzer, 2013). Physicians play an important role in promoting physical activity among older adults. However, a study conducted by Balde and colleagues (Balde, Figueras, Hawking, & Miller, 2003) found that nearly 38% of their sample do not received counseling about physical

activity from their physician. The physical environment also presents as a potential barrier to physical activity practice or/and exercise adherence. For example, environments with high crime decrease the likelihood of people becoming more active (Fox, Mann, Ramos, Kleinman, & Horowitz, 2012; MMWR, 1999). Fox et al. conducted a study with nearly 300 participants living in East Harlem, New York. The authors aimed to gain insight into the ways characteristics of the neighborhood, particularly safety and perceived barriers, influence physical activity levels. Their sample was majority female (63%); about 13% was 65 years and older and 31% reported to be African American. Nearly 20% reported they do not have a safe place to exercise. When asked about neighborhood safety, approximately 55% reported that their neighborhood is not safe from crime. Furthermore, 41% reported that they do not feel safe to walk alone in the neighborhood on the street at night; 47% do not feel safe taking the train/subway at night; 36% do not feel safe taking a public bus at night; 18% do not feel safe in a park or playground during the day time and 12% do not feel safe to take the train or subway during the day and; only 3.5% reported that they not feel safe in taking the public bus during day time.

A study conducted by Cohen-Mansfield and colleagues (Cohen-Mansfield et al., 2003) assessed barriers to physical activity among people age 74–85. A total of 324 community dwelling participants completed a health questionnaire that included items on barriers to physical activity. The authors observed that among the most reported barriers, health problems/pain presented the highest prevalence (53%). However, other barriers such as: lazy/not motivated (29.3%), too busy/no time (25%), fatigue (11.6%), bad weather (11%) and, don't like it (8%) were also mentioned by the participants in their study.

Specifically for cultural diverse groups, including African Americans, a group of experts participated in a national roundtable on increasing physical activity among adults of

color age 50 years. The main goal of this group was to increase the knowledge and to identify gaps, challenges and opportunities for developing innovative and effective physical activity interventions for older adults of culturally diverse backgrounds. The African American breakout group discussed some of the barriers in the African American communities, and highlighted an array of barriers that included: personal-based factors, environmental factors, social environmental factors, and program intervention factors (ASA, 2005).

Research exploring physical activity participation and elucidating constraints to physical activity among cultural diversity minority groups has increased over time. For example, significant barriers that either prevent or make it difficult for African American women to engage in physical activity have been reported by a number of studies. These include: financial limitations (Richter, Wilcox, Greaney, Henderson, & Ainsworth, 2002; Young, He, Harris, & Mabry, 2002), paucity of physical activity-related health education (Nies, Vollman, & Cook, 1999), lack of physical activity models (Richter et al., 2002; Young et al., 2002), lack of space and neighborhood safety issues (Richter et al., 2002; Wilbur, Chandler, Dancy, & Lee, 2003; Yancey, Simon, McCarthy, Lightstone, & Fielding, 2006; Young et al., 2002), ideal body image (Yancey et al., 2006), and hair maintenance (Malpede et al., 2007). It is noteworthy that in numerous studies, the most common reported barrier by African American women was incorporating and prioritizing physical activity into their daily routine and competing family and work responsibilities (Henderson & Ainsworth, 2000; Malpede et al., 2007; Nies et al., 1999).

Recognizing physical inactivity challenges experienced by older African American populations, especially, women, Schuler et al. (Schuler, Roy, Vinci, Philipp, & Cohen, 2006) conducted a study that aimed to identify barriers and motivations to exercise associated

with both older African American and European American women. A total of 204 older female volunteers (115 African American) ranging in age from 60 to 86 years were included in the study. Participants were recruited from different places such as community centers, churches, and independent living facilities located in the southeastern United States. Chronic health or physical problems were the most frequently cited barriers to exercise for older African American (15%) as well as European American women (20%). Other barriers such as causes too much pain, already active enough, no self-discipline, nobody to exercise with, don't know how, don't have time, exercise is for young people, limited access/transportation and, too expensive were also reported. These barriers ranged from .9 to 14% for African Americans and 5.6 to 13.5% for European Americans.

Rimer and colleagues (Rimmer, Rubin, & Braddock, 2000) examined what factors African American women with physical disabilities perceive as barriers to exercise. A total of 50 women aged 18 to 64 were selected from the Assistive Technology Unit of the Department of Disability and Human Development at the University of Illinois at Chicago. Among them 65% of the participants were aged 50 to 64 years old. Although the majority of the participants (72%) acknowledged knowing about the benefits of exercise, a variety of barriers that prevent them from being active were identified. According to the authors, the most frequently reported barriers were cost of the exercise program (84%), lack of energy (66%), lack of transportation (61%), and not knowing where to exercise (58%). Health concerns that served as facilitators for physical activity were reported by 40% of the participants in this study.

Aesthetic/beauty factors have also been reported in the literature as barriers for physical activity in the African American female population. For instance, Hall et al. (Hall et al., 2013) conducted a study to examine the hair care practices as a barrier to physical

activity in African American women. A total of 103 African American women aged 21 to 60 years old were studied. The findings showed that about 38% of the study participants reported avoiding exercise at times because of hair issues. Moreover, hair concerns led 36% of the women in the study to avoid water activities and almost 30% to avoid aerobic activities.

There are unique challenges associated with initiating and maintaining physical activity in the elderly population. Therefore, acknowledging the unique challenges and clarifying the relevant issues is an essential step in developing a strategy to facilitate physical activity among the older adult population.

#### **2.4.2 Facilitators for Physical Activity**

Due to the complex interaction between the large numbers of potential factors associated with behavioral change, many of the barriers to physical activity for the older adult may also sometimes serve as facilitators to physical activity (Schutzer & Graves, 2004). For instance, (Cohen-Mansfield et al., 2003) Cohen-Mansfield et al. explored motivators to physical activity in about 300 community dwelling older adults found that improved health/feeling better, as well as someone to be physically active with, good weather and, having more time were reported by their participants as facilitators for physical activity engagement.

Costello et al. (Costello, Kafchinski, Vrazel, & Sullivan, 2011) used a qualitative design to explore perceptions of physically active and inactive older adults regarding physical activity and exercise. The study analyzed 31 older adults (60 years and over) who joined focus group discussions regarding physical activity beliefs and behaviors. The authors found that for the physically active group, health concerns, socialization, accessibility (i.e.

convenience, cost, and safety), facilities, fun, and encouragement from one's physician, were identified as motivators for physical activity. It is noteworthy that concerns about health were the most frequent factor reported as a motivator. In addition, for the physically inactive group, the authors observed that this group reported purposeful activities, social opportunities, and fun as the major motivators.

Older women are a vulnerable group for physical inactivity. Understanding what motives influence older women's engagement in physical activity is important to appropriately tailor health promotion interventions in such a way as to increase the likelihood of an individual participating. Stephan et al. (Stephan, Boiche, & Le Scanff, 2010) examined motivational determinants for physical activity in about 550 older women. The authors found women engaged in physical activity for a variety of reasons: the pleasure derived from physical activity and its perceived value; a means to achieve desirable outcomes (such as health or social relationships); a means to relieve guilt if they were not active and; expected rewards or recognition.

Apparently different motivators for physical activity are observed when studying special populations. Leutwyler and colleagues (Leutwyler, Hubbard, Slater, & Jeste, 2013) conducted a qualitative grounded theory study to explore perceptions about barriers and facilitators to engage in physical activity among older adults with schizophrenia. After analyzing data on 16 participants, the authors found that improving physical functioning, mental health, self-consciousness about their own limitations, feelings of pride and well-being, comfort and safety and, feeling of belonging were reported as motivators to be physically active among their participants.

The physical inactivity problem is an important issue among minority populations including African Americans. According to Kim and Glanz (Kim & Glanz, 2013) minority

populations can benefit from motivational text messaging. These authors examined whether 6-week program of motivational text messaging increases physical activity (step count) among older African Americans living in an urban setting. Thirty-six African Americans aged 60-85 years were randomly divided into two groups (text messaging and control). The intervention group received motivational text messages three times a day, 3 days a week, for 6 weeks. Both groups received pedometers and walking manuals to record step counts. The authors observed that the group who received motivational text messages had greater improvements in step count (+679 vs. +398) and perceived activity levels compared to the control group. The authors concluded that motivational text messaging was effective in motivating older African Americans to be more physically active.

## **2.5 Perceptions about Physical Activity**

### **2.5.1 Perceptions about Physical Activity among African Americans**

African Americans and particularly older African American women are a vulnerable group with respect to risks for physical inactivity. Previous studies exploring perceptions of physical activity among older African Americans suggests that African Americans may conceptualized these terms differently, and therefore be less responsive to public health messages. (Affuso et al., 2011; Harley, Odoms-Young, et al., 2009; Lavizzo-Mourey et al., 2001; Wilcox et al., 2005). For instance, Wilcox and colleagues (Wilcox et al., 2005) studied the understanding of the terms physical activity and exercise in underactive older African American and White women living in a rural area of South Carolina. Using a convenience sample, the authors assessed a total of 39 women aged 50 years and older living in a rural area of South Carolina. The authors observed that the concept of physical activity is viewed as a broader concept than exercise. Additionally it was observed that older adults in their



study are often confused regarding their understanding of physical activity. Furthermore, Wilcox et al., found that their African American women participants were confused with the term “moderate intensity” of physical activity. Additionally, the entire sample was confused when trying to explain the term “accumulate”.

Similarly, Lavizzo-Mourey and colleagues (Lavizzo-Mourey et al., 2001) also observed discrepancies in the concept of exercise in a study conducted within urban older African Americans. The authors conducted a qualitative study during the first phase of a large study that aimed to develop an exercise intervention to prevent falls and improve functioning among elderly African Americans living in an urban community. Employing focus groups, the authors addressed perceptions, attitudes and beliefs regarding exercise among 38 persons that were recruited from a variety of settings. Participants were African Americans aged 65 years and older living in urban West Philadelphia community and were divided in less physically capable and more physically capable according to their physical functioning status. The authors observed that the less physically capable group were more confused when conceptualizing exercise.

## **2.6 Physical Activity Assessment**

### **2.6.1 Instruments for the Assessment of Physical Activity**

Parallel with the concern of promoting physical activity among the population, issues related to how best to measure physical activity has drawn the attention of researchers (Ueno, Sebastiao, Corazza, & Gobbi, 2013). Many different instruments and methods for the assessment of physical activity can be found in the literature (Warren et al., 2010; Westerterp, 2009). These methods include self-reports instruments and objective measures. Among the self-report instruments are included: questionnaires, diaries, logs and recalls.

The objective measures include: heart rate monitors, accelerometers, pedometers, motion sensors, direct observation and doubly labeled water (Warren et al., 2010).

Warren and colleagues state that it is important to consider several factors before deciding the instrument/method to be employed in the study (Warren et al., 2010).

Researchers should consider the following issues: research question (what is the study outcome of interest?); dimension/domain of physical activity; population under study (age, ethnicity, cognitive ability); length of time; resources; study type/design; capacity for data analysis; experience in assessment and; participant burden.

Examining the two extremes of instruments/methods to assess physical activity we found in one side the doubly labeled water and in the other self-report questionnaires. Doubly labeled water is considered the “gold standard” technique to measure energy expenditure and has been used to validate numerous other instruments that measure physical activity (Johansson & Westerterp, 2008; Philippaerts, Westerterp, & Lefevre, 1999; Plasqui & Westerterp, 2007). Doubly labeled water is a sophisticated technique that is expensive, requires highly trained research personnel for its application and, it is unable to evaluate a large number of persons. On the other hand, questionnaires are simple, practical, inexpensive and, able to be applied in a large number of persons. Although questionnaires present several advantages, there is compelling evidence in the literature that physical activity level measured by self-report questionnaire present many problems. One critical problem of a self-report physical activity questionnaire is that they often overestimate the amount of physical activity performed. For instance, Sebastiao and colleagues (Sebastiao et al., 2012) explored issues associated with measuring physical activity using the widely used International Physical Activity Questionnaire (IPAQ) in adults. After analyzing information from 1572 participants, the authors concluded that the IPAQ appears to overestimate levels

of physical activity, suggesting that the instrument has problems in accurately measuring levels of physical activity in adults. Moreover, the authors suggest caution is warranted before using IPAQ data to support public policy decisions related to physical activity. The same issue was reported in other different studies (Hallal et al., 2010; Rzewnicki, Vanden Auweele, & de Bourdeaudhuij, 2003).

Other investigators have suggested the use, whenever possible, of accelerometers to collect more direct measurements of physical activity (Harris et al., 2009; Sebastiao et al., 2012). Accelerometers are capable of overcoming the cost and feasibility limitations of doubly labeled water and the lack of reliability present in self-report questionnaires.

### **2.6.2 Accelerometry**

Accelerometers are simple devices that measure physical activity levels during daily activities and have been proven to report more valid and reliable data compared to self-report questionnaires (Harris et al., 2009). In a review, Westerterp (Westerterp, 1999) described accelerometers, as an objective tool for the assessment of physical activity in large populations, over periods long enough to be representative of normal daily life and with minimal discomfort to the subjects. The authors concluded that the tri-axial accelerometer is an objective method that can be used to distinguish differences in activity levels between individuals and to assess the effect of interventions on physical activity within individuals.

Accelerometers have been successfully used in the older adult population to provide valid and reliable estimates of physical activity levels (Harris et al., 2009; Plasqui & Westerterp, 2007). For instance Harris and colleagues (Harris et al., 2009) compared the convergent validity of the self-report Zutphen Physical Activity Questionnaire with 7-day

objective physical activity measurement by accelerometers and pedometers. After evaluating 560 community dwelling people aged 65 years and over, the authors found a strong convergent validity between accelerometers and pedometers and a weak validity between these and the self-report questionnaire. Additionally, according to the authors, objective measures present better construct validity, being more strongly associated with established physical activity determinants. Therefore, objective measures seem to offer better information to investigators when compared to questionnaires.

In line with the Harris and colleagues study, Plasqui and colleagues (Plasqui & Westerterp, 2007) conducted a review to examine the ability of different types of accelerometers to assess daily physical activity. The ability of accelerometers to measure physical activity was compared with the doubly labeled water technique. After analyzing the 28 included studies, a total of 8 different types of accelerometers were found. Among them 3 uniaxial, 1 biaxial, 2 triaxial, 1 device based on 2 position sensors and, 1 foot-ground contact pedometer. In depth examination of the articles brought the authors to the conclusion that the best results were found for the triaxial accelerometer which was proven to reasonably correlate with doubly labeled water technique.

Davis and Fox (Davis & Fox, 2007) assessed physical activity volume and intensity performed by older adults recruited from a project located in Europe. The authors evaluated healthy older adults aged 70 years and over, who were recruited to the Better Ageing Project at four European sites based in the United Kingdom, France and Italy. A total of 163 older adults both male and female were included in the study. This study was the first to provide objective data on a large sample of adults aged 70 years and over. The information collected indicates that the older adults enrolled in their study present low levels of daily movement that are likely to be inadequate to achieve health benefits. However, Davis and

Fox stated that accelerometry provides valuable data for the assessment of volumes, intensity and patterns of physical activity across the daily and weekly patterns of older people.

The relative position of the accelerometer on the body is another important consideration for the investigator. Ideally, the accelerometer should be attached as close as possible to body's center of mass to approximate whole body movement and energy expenditure (Murphy, 2009; Trost, McIver, & Pate, 2005). However, feasibility and subject burden should be carefully considered when planning a study (Trost et al., 2005). There are few studies in the literature reporting monitor placement other than hip-waist area (Morgenthaler et al., 2007; Nilsson, Ekelund, Yngve, & Sjöström, 2002; Yngve, Nilsson, Sjöström, & Ekelund, 2003). However, Trost and colleagues suggest placing the monitor at the hip-waist area if the purpose is to approximate energy expenditure (Trost et al., 2005).

## **2.7 Visual Methods in Qualitative Studies**

### **2.7.1 Photo-elicitation**

In 1994 Hagedorn wrote about some of the advantages in using photography in research: "Photographs invite open expression while maintaining concrete and explicit reference points. The images captured in photography invite people to take the lead in inquiry, facilitating their discussion of an experience. Photographic interviews elicit a unique return of insights that might otherwise be impossible to obtain with other techniques. Photographs sharpen memory and give the interview an immediate character of realistic construction and function" (Hagedorn, 1994).

Photo elicitation is a research technique that invites participants to take photographs of salient features in their lives that are both personally meaningful and

possess significant explanatory power. In 2002, Harper (Harper, 2002) described photo elicitation as a research technique based on the simple idea of inserting a photograph into a research interview. The difference between interviews using images (e.g. photography) and text, and interviews using words alone lies in the ways that people respond to these two forms of representation. According to Harper, the parts of the brain that process visual information are evolutionarily older than the parts that process verbal information, which allow images to evoke deeper elements of human consciousness compared to words. These may be some of the reasons that make photo elicitation interviews seem like not simply an interview process that elicits more information, rather one that evokes a different type of information, providing more meaningful information.

The photographs used in photo elicitation research extend along a continuum. In one extreme are what might be considered the most scientific, that is, visual inventories of objects, people and artifacts. In the middle of the continuum are images that depict events that were part of collective or institutional pasts, for example, schools, or images depicting events that occurred earlier in the lifetimes of the subjects. At the other extreme of the continuum photographs display the dimensions of the social – family or other intimate social group, such as the community environmental where people live. Elicitation interviews connect “core definitions of the self” to society, culture and history (Harper, 2002).

Photo elicitation technique has recently been successfully employed in several physical activity studies to explore attitudes, beliefs, and preferences around physical activity topics (Fleury et al., 2009) and for other different purpose, such as commuting preferences (Guell & Ogilvie, 2013), meaning of leisure in people with dementia (Genoe & Dupuis, 2013) and, food choices (Johnson, Sharkey, McIntosh, & Dean, 2010). For instance, Fleury and colleagues, based on a paucity of solid evidence on effective physical activity

interventions for Hispanic women, stated the importance to use innovative approaches to better understand the cultural, social and contextual factors to promote health among underserved population. The authors conducted a study with two purposes. First, the authors aimed to explore cultural, social, and contextual resources for physical activity among Hispanic women and; second, they examined the acceptability of visual methods among Hispanic women to enhance the relevance of intervention approaches. Employing a qualitative descriptive methodological design including photo elicitation, the authors assessed 7 low income women (mean age of 44 years old) recruited from community-based outpatient clinics in the southwestern United States. About 24 photographs were taken by the participants. Seven photographs used during the qualitative interviews. According to Fleury and colleagues, participant's photographs were diverse and meaningful, and provided a pertinent basis for capturing resources for physical activity among the studied population. In addition, based on feedback received from participants, photo elicitation combined with qualitative descriptive methods was acceptable and relevant. According to the women, "the use of photographs helped them to better express themselves and illustrate resources for engaging in physical activity" (Fleury et al., 2009).

How people commute from place to place also contributes to their physical activity level and is potentially of great importance for public health. Guell and Ogilvie (Guell & Ogilvie, 2013) explored whether participants can use visual narratives to describe commuting experiences. Using photo elicitation, the authors interviewed 19 participants who lived in Cambridge and its hinterland in the east of England. Participants' age ranged from 5 to 61 years old. In total, participants produced over 500 photos about their journeys to and from work. After in-depth discussion of the photos with the participants, the authors concluded that through photography they were able to produce rich observational data.

Thereby, a photography approach is an additional source to documenting and comprehending a more complete and complex picture of health-related experiences.

## **2.8 Theories of Health Behavior**

### **2.8.1 Social Ecological Model of Health Behavior**

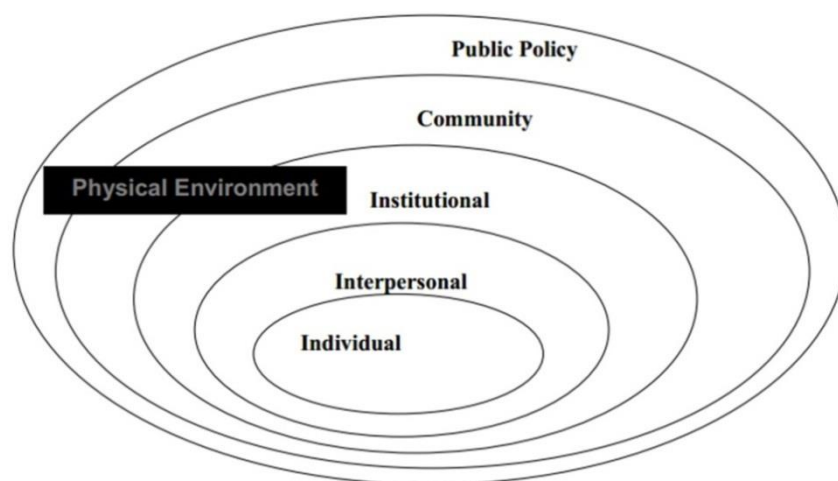
Public health is a multidisciplinary field characterized by a focus on prevention and on the health of populations, rather than individuals (Aschengrau & Seage, 2008). It takes a systematic approach to problem solving that includes reviewing evidence to determine the existence, scope and magnitude of a problem and it uses models and theories to explain the rationale behind its interventions. There are several theories and models that are applied in the health sciences that aim to understand health behavior.

According to Crosby and colleagues (Crosby, Salazar, & DiClemente, 2013) ecological approaches are adequate and effective for understanding the complex health behaviors that are involved in daily living, such as diet and physical activity. Furthermore, ecological approaches are commonly understood to be more effective compared to single-level approaches (Crosby et al., 2013). The Social Ecological Theory of Health Behavior (Stokols et al., 1996) suggests that individual behavior does not occur in isolation but emerges from a complex multi-level interaction between the individual, the environment, and the community where they live (Sallis et al., 2006). One important characteristic of this theory is that it acknowledges that environmental factors must be taken into consideration when developing recommendations for different segments of the population. Moreover, this model suggests that simply offering individual physical activity programs is unlikely to be an efficient strategy that is sufficient to increase physical activity at the community or population level. According to Stockols et al., behavior occurs in different places and times



for a large array of complex, but predictable, reasons and understanding these relationships can foster the creation of healthier communities (Stokols et al., 1996).

Physical activity is a dynamic and complex behavior that clearly depends on multiple factors. Researchers suggest that employing a multilevel approach to study behavior provides a comprehensive framework for understanding behavior change without losing the specificity observed on each level. Accordingly, ecological models clearly examine the extent to which inter-level relationships influence each other in a mutual manner (McLeroy, Bibeau, Steckler, & Glanz, 1988; Spence & Lee, 2003). The figure 1 below depicts the Social Ecological Theory of Health Behavior with its different levels of interaction.



**Figure 4.** Representation of the Social Ecological Model of Health Behavior.

Socio-ecological models were developed to improve the understanding of the dynamic interrelations among various personal and environmental factors. It is believed that these models were first introduced to urban studies by sociologists following the First World War as a reaction to the narrow scope of most research conducted by developmental psychologists. These models seem to connect the gap between behavioral theories that focus on small settings and anthropological theories that examine larger settings. It suggests that the Social Ecological Model of Health Behavior received influence from the work

conducted by Bronfenbrenner and other researchers (Bronfenbrenner, 1977). The psychologist Urie Bronfenbrenner introduced the ecological paradigm for human development as a conceptual model in the 1970's and later the concept was formalized as a theory (Bronfenbrenner, 1986; Bronfenbrenner & Bronfenbrenner, 2009). The Ecological Framework of Human Development applies socio-ecological models to human development, referring mainly to psychological and social dimensions of development. This framework proposed that in order to understand human development, the entire ecological system in which growth occurs needs to be taken into account. Bronfenbrenner stated that the social ecology of human development involves the study of mutual transactions between human beings and the properties of the environmental systems in which they interact throughout their life (Crosby et al., 2013). In subsequent revisions, the relevance of biological and genetic aspects of the person in human development was acknowledged. The Ecological Framework of Human Development is composed by four socially organized subsystems. It includes the microsystem, mesosystem, exosystem, and macrosystem (Bronfenbrenner & Bronfenbrenner, 2009). These levels present large similarities with the levels that compose the Socio Ecological Model of Health Behavior.

### **2.8.2 Elements of Health Disparity**

Although important and necessary the Social Ecological Model of Health Behavior may not be enough to help explain as a whole, physical activity behavior in the African American population. Therefore, the Social Ecological Model of Health Behavior was supplemented by elements of health disparity observed in the literature. As known, the African American population presents a history of inequalities over time that places them in disadvantage regarding their health. Health disparity in minority groups is well documented

in the United States. According to Williams and Mohammed racial disparities in health in the United States are large and pervasive (Williams & Mohammed, 2009). The literature provides information on relevant factors and possible explanations for health disparities in the African American population. These factors and explanations include but are not limited to: the legacy of slavery, discrimination, racism, racial segregation (Brondolo, Gallo, & Myers, 2009; D. Gaskin, A. Headen, & S. White-Means, 2005; D.R. Williams & Mohammed, 2009), residential segregation, social isolation (Gaskin et al., 2012), access to health care (Fiscella, Franks, Doescher, & Saver, 2002; Waidmann & Rajan, 2000), poverty as economic access, lack of regular institutional resources (Rankin & Quane, 2000), stress, and social and environmental exposure (Gee & Payne-Sturges, 2004; Thorpe et al., 2008).

These factors also provides a partially background explanation for what scholars known as culture of mistrust. As mentioned by the former president of the United States Bill Clinton: “The legacy of the study at Tuskegee has reached far and deep, in ways that hurts our progress and divides our nation. We cannot be one America when a whole segment of our nation has no trust in America” (President Bill Clinton, on May 16, 1997). In an article published by Gamble (Gamble, 1997) entitled *Under the Shadow of Tuskegee: African Americans and Health Care*, the authors made reference to several documents that pointed out that the study caused African Americans to distrust both medical and public health authorities and has led to remarkable low African American participation in clinical trials and organ donation. Although studies suggest that the Tuskegee study is just one reason (Boulware et al., 2003; Randall, 1995), frequently it is described as the singular reason behind African American distrust of the institutions of medicine and public health (Gamble, 1997). However, for some researchers, the African American Culture of Mistrust is based on a legacy of slavery, segregation, racism and medical abuse suffered by this population in the

past (Boulware et al., 2003). A study conducted by Boulware and colleagues (Boulware et al., 2003) analyzed the responses of a cross-sectional telephone survey to evaluate the relationship between self-reported race and trust of physicians, hospitals, and health insurance plans. A total of 118 randomly selected participants aged 18 to 75 years completed the survey. The authors observed that Blacks and Whites differed in their level of trust in physicians, hospitals, and health insurance plans. Blacks were less likely to trust their physicians; however more likely to trust in the health care plans compared to Whites (28% difference). In addition, Blacks were less likely to trust in hospitals compared to Whites. Boulware and colleagues (Boulware et al., 2003) suggest that racial variation in trust of different health care entities may be a result of divergent cultural experiences that affect the domains of both interpersonal and institutional trust. Furthermore, African Americans have a greater awareness of the compiled history of racial discrimination in the health care system than Whites; this could be one of the reasons associated with less trust of clinical and research institutions.

Corbie-Smith and colleagues (Corbie-Smith et al., 2002) examined possible differences in distrust by race. Using the 7-item index of distrust, the authors analyzed the data from 527 African Americans and 382 Whites respondents. The data analyzed was the first wave of a series of national telephone surveys that explored the knowledge, attitudes, and beliefs of Americans toward physicians and engagement in clinical research. The authors observed that African American participants were more likely than Whites not to trust that their physicians would fully explain research participation. In addition, nearly 46% of African Americans and about 35% of Whites reported that they believe their physicians exposed them to unnecessary risk. According to the authors, African Americans presented a significant higher mean distrust score compared to Whites (3.1 vs 1.8). The authors

concluded that even after controlling for social class, African Americans were less trusting compared to their Whites counterparts.

A study conducted by Benkert and colleagues (Benkert, Hollie, Nordstrom, Wickson, & Bins-Emerick, 2009) the association between cultural mistrust, medical mistrust, and racial identity was explored. Using a descriptive-correlational research study, the authors recruited a convenience sample of 100 community-dwelling adults with mean age of 57 years. Seventy one percent of the participants self-reported themselves were African Americans and the rest was distributed in Blacks (27%), Afro-American and American with 1%. The findings suggest that the sample of middle-aged African Americans in their study held moderate levels of cultural and medical mistrust; however African American women reported high trust and satisfaction with their nurse practitioners. The culture of mistrust is less a theory than an idea that can assist researchers to understand attitudes for a variety of behavior among the African American population.

This literature review summarizes a number of important issues related to chronic diseases and conditions among older adults. Chronic disease is increasingly a concern due to substantial demographic changes in the United States and beyond. They are especially a challenge among minorities due to a variety of issues related to health disparities. Physical activity is increasingly recognized as a major protective factor in the fight against chronic disease. The literature review suggests that older African Americans may be among the least active segments of society in the USA. A number of different barriers and facilitators for physical activity engagement have been proposed. It is increasingly clear that qualitative research methods may be helpful to increase our understanding of the barriers and facilitators for physical activity among minorities. The literature review concludes with a discussion of how the Social Ecological Model of Health Behavior and the use of elements of

health disparity observed in the literature may help to inform our understanding of the role of physical activity in the prevention, management, and treatment of chronic diseases and conditions among older African American women.

## **CHAPTER 3 METHODOLOGY**

This chapter describes the research methodology employed in the study. It consists of a description of the research design, the study participants and site, data collection procedures, and data analysis.

### **3.1. Research Design**

This study explored the understanding of physical activity in older African American women and factors that contribute to their decision to be physically active or to follow a sedentary lifestyle. In doing so, we explored perceptions, attitudes and values about physical activity in older African American women. The study employed a cross-sectional mixed method design to accomplish these goals. Mixed methods entail the incorporation of both quantitative and qualitative approaches into a single study for the purpose of gaining a better understand of the research problem (Creswell, 1999; Tashakkori & Teddlie, 2003). In the present study, the quantitative portion was conducted by objective assessment of participant's physical activity level through accelerometers, whereas the qualitative portion of the research study was the exploration of attitudes and perceptions about physical activity through semi-structured interviews facilitated by a photo-elicitation and focus groups procedure.

#### **3.1.1 Instruments for Data Collection**

In order to assess physical activity level of the participants, this study employed accelerometers to collect information on physical activity. Accelerometers are simple devices capable of objectively measuring physical activity on a daily basis and able to provide valid and reliable estimates of physical activity. Data from the accelerometers helped us to identify participants who were sufficiently physically active to attain health

benefits (meeting the criteria of 150 minutes per week of moderate to vigorous physical activity); and those considered sedentary (less than 150 minutes per week of moderate to vigorous physical activity ) (DHHS, 2008a).

In order to probe the relationships between the individual and the broader community (both in the context of the physical environment and also the in socio-cultural context) and how it affects the choices made by the individuals towards physical activity, this study adopted a community-based participatory technique known as photo elicitation. Photo elicitation is a research technique based on using a participant's own photographs to stimulate discussion during a structured research interview (Harper, 2002). The photographs taken by the participants were used to stimulate discussion during the individual interview. In order to help to place the findings of the study within a broad theoretical framework, the study was grounded within the Social Ecological Theory of Health Behavior (Stokols et al., 1996). Acknowledging the particularities of the African American community, the Socio-Ecological Model of Health Behavior was supplemented by elements of health disparity observed in the literature (please refer to item 2.8.2 of the literature review section for details).

Prior to the commencement of the study, the research study protocol was approved by the Institutional Review Board of the University of Illinois at Urbana-Champaign. A signed informed consent from all participants was required prior data collection.

### **3.2 Participants and Study Site**

Although this study employed both qualitative and quantitative approach to address its goals, the qualitative portion comprised the majority of the study. It is important to mention that sampling is also very important within qualitative research. A primary goal of a



qualitative study is to bring insight into a particular phenomenon in a specific population. Because qualitative research is less concerned about statistical power, the process for determining an appropriate sample size in qualitative research differs from that used in quantitative studies (Onwuegbuzie & Leech, 2007). Most researchers believe that the sample size in qualitative research should be sufficient to achieve theoretical saturation and that researchers should stop sampling when no substantial additional information is being found (Fontanella, Ricas, & Turato, 2008). Qualitative studies often reach theoretical saturation with a relatively small number of participants (Patton, 2002; Suri, 2011).

A total of 20 older African American women aged 60 to 80 years old were selected from the Urbana-Champaign community to take part in this study. This sample size proved to be enough to reach the theoretical saturation, because no additional information was found after analyzing data from the first 15 participants. Participants were recruited using publicity and advertisements (e.g. flyers) distributed in a number of community locations. In addition, community leaders (e.g. bishops, health care providers, etc.), and “word of mouth” were used to recruit participants. Community leaders played an important role in facilitating the participation of older adults in research studies, especially for the African American population.

### **3.2.1 Inclusion and Exclusion Criteria**

To be included, participants had to self-report as female and as African American. Additionally, participants were required to be 60 to 80 years old and live in the community. Moreover, participants must be able to walk independently and be able to answer questions coherently by themselves. This study did not include older adults living in institutionalized

settings (i.e. nursing homes, etc.), as well as individuals with significant cognitive and physical functioning decline.

### **3.3 Data Collection**

The present research study was conducted in four different steps:

#### ***3.3.1 Step One: Socio-Demographic, Health and self-report Physical Activity Data Collection***

Upon recruitment into the study, participants met the research team to receive a more detailed explanation about the research study and were invited to provide informed consent. Next they completed a standardized questionnaire for the collection of socio-demographic, health information and self-report physical activity. Within the first part of the questionnaire, participants provided information on age, years of completed education, marital status, socioeconomic status, self-reported health status, number of diagnosed chronic diseases, etc. The second part of the questionnaire was composed of section 10 of the 2011 Behavioral Risk Factor Surveillance System Questionnaire. This section consists of 8 questions about exercise, recreation, or physical activity. In addition, a portable digital scale was used to collect information on weight and height.

#### ***3.3.2 Step Two: Accelerometer and Camera***

Participants who meet the inclusion criteria of the study and successfully completed step one followed to step two of the study. Step two involved the use of accelerometers to objectively measure physical activity levels and taking photographs using a disposable camera. Accelerometers are simple devices that measures physical activity level during daily

activities that have been shown to report more valid and reliable physical activity data when compared to self-report questionnaires. Accelerometers can be attached in different areas of the body (hip, wrist, and ankle) (Trost et al., 2005). However, for the purpose of this study, the accelerometers were attached at the hip. Participants attached the device the moment they woke up and took it off when they went to bed or engaged in water activities. Participants were asked to wear the accelerometer for 7 consecutive days. In order for data to be considered valid, participants were required to wear the accelerometer for at least 10 hours.

Along with the use of accelerometers, participants were given a disposable camera to take photos of meaningful places and things (both positive and negative), and people they interact with. Participants' photography was guided by a set of prompts provided by the researchers. As the intention was to "see the world through the participant's eyes", participants were asked to include photographs representing both week and weekend days about places they visit and people they interact with that for them were related to being active. Participants received detailed instruction and training regarding the use of the accelerometers and cameras. Upon completion, accelerometers and cameras were retrieved by the research team for data analyses.

### ***3.3.3 Step Three: Individual Interviews***

Upon return of the accelerometers and the disposable cameras, participants participated in an individual semi-structured interview. The interviews were conducted by the investigator (Emerson Sebastiao). Participants were asked to select 5 meaningful pictures to talk about. Another 2 photos were selected by the researcher. These photos served as stimuli for the discussion topics in the interviews. The interviewer explored in

detail how active and inactive participants viewed physical activity opportunities in their local environment, and probed about factors that posed as barriers or facilitators for physically active behavior. Additionally, the photography conversation helped to understand how this population conceptualizes physical activity. For each photograph, participants were asked to describe: (1) what the image was? (2) What was happening in the photograph? (3) Why the image was important? (4) What resources for physical activity were shown in the image? (5) How the related to being active or inactive? Why? The interview questions were developed in accordance with 2 theoretical perspectives; the Social Ecological Model of Health Behavior and elements of health disparity observed in the literature.

Finally, participants were asked to look at all of the photographs together to identify any recurring ideas or themes around resources for physical activity, and to comment on the relevance of these themes. The interview was tape-recorded. Each interview lasted about 60 minutes. Upon completion, interviews were transcribed, and all data - photographs and interviews – were coded in order to be analyzed, and to explore common and recurring themes.

The questions used to guide the conversation during the individual interview process are included in APPENDIX A.

#### **3.3.4 Step Four: Focus Group**

At step four, small groups of participants were asked to comment on a number of physical activity messages that are currently being disseminated by government agencies in their campaigns to educate the public about physical activity. Two focus groups were created based on the participant's physical activity classification (i.e. an active focus group and a sedentary focus group). Each group met with the investigator for about 60 minutes.

For each group a moderator (Emerson Sebastiao) facilitated the discussion. Materials (brochures) used by the Federal Government Health Agencies to promote physical activity and exercise were presented for each group and the participants commented on each of them. The materials presented during the focus group section were: (1) Exercise and Physical Activity: Your Everyday Guide from the National Institute on Aging ([http://www.nia.nih.gov/sites/default/files/nia\\_exercise\\_and\\_physical\\_activity.pdf](http://www.nia.nih.gov/sites/default/files/nia_exercise_and_physical_activity.pdf)); (2) Center for Disease Control and Prevention: Physical activity guidelines for older adults (<http://www.cdc.gov/physicalactivity/everyone/guidelines/olderadults.html>) and; (3) Be Active Your way: A guide for adults (<http://www.health.gov/paguidelines/pdf/adultguide.pdf>).

The questions used to guide the focus groups discussion are included in APPENDIX B.

### **3.4 Data Analysis**

#### **3.4.1 Qualitative Data Analysis**

The qualitative data were analyzed using a hybrid approach (inductive and deductive) (Fereday & Muir-Cochrane, 2006). The inductive process was employed to unveil patterns, themes, and categories in the data set, whereas the deductive process analyzed the data following an existing framework (Patton, 2002). The qualitative data were analyzed adopting descriptive thematic analysis approach. Since the goal was to try to understand the nature of physical activity and to understand the lived experiences of older African Americans, and how they conceptualize physical activity behavior, thematic analysis approach seemed to be appropriate.

The thematic analysis involved identifying themes that emerge from the data as being important to the description of the phenomenon (physical activity). It involved the

process of identifying, analyzing, interpreting, and reporting themes. The following table 2 describes in detail how qualitative data were analyzed.

**Table 2.** The phases used during qualitative data analysis

<b>Phase 1</b>	Familiarization with the data (active reading and re-reading). Meanings and patterns were considered. Notes were taken
<b>Phase 2</b>	Initial codes were generated
<b>Phase 3</b>	Themes were searched
<b>Phase 4</b>	Themes were reviewed
<b>Phase 5</b>	Themes were named and identified
<b>Phase 6</b>	A report was produced (results)

The main code categories used to start the analysis of the data are described in the table 3 below.

**Table 3.** Main code categories used to start qualitative data analysis

<b>Code</b>	<b>Description</b>
<b>Facilitators</b>	Personal, Family, Community/Environmental, policies issues that may helped older African American women be physically active
<b>Barriers</b>	Personal, Family, Community/Environmental, policies issues that may hindered older African American women from being physically active
<b>Physical Activity and Exercise Benefits</b>	Any relation made by older African American women associating physical activity or exercise to a benefit (e.g. health, treatment, disease, etc.)
<b>Recommendation for Physical Activity</b>	Older African American women's knowledge about physical activity and exercise recommendation for people in their age

NVIVO 10 was used as tool to help in organizing and managing the data (San Emeterio, de León Elizondo, & Sanz, 2011). In general, this software facilitates qualitative data analysis by allowing for the hierarchical coding and organization of data across themes and groups. The coding guide was organized according to the Social Ecological Theory of Health Behavior and supplemented by elements of health disparity observed in the literature in order to allow us to capture individual, interpersonal, environmental, and community influences on physical activity. However, data were also analyzed in terms of findings themes that diverge from the theoretical models selected in this study. All transcripts were independently coded by the researcher.

### **3.4.2 Quantitative Data Analysis**

The quantitative data were analyzed using descriptive data (mean, standard deviation, percentage, etc.). This procedure was used to report the socio-demographic and health variables, as well as for the accelerometer data. Parametric statistics (*t* test for two independent samples) was used to test the difference between physical activity level between the active and sedentary group. A significance level of 5% was adopted. All statistics procedures for data analysis were conducted using IBM SPSS Statistics version 22 software (Copyright IBM Corporation and other(s) 1989, 2013)

### **3.5 Authenticity and Trustworthiness**

Authenticity is an important aspect of qualitative research (Schwandt, 2001; Tobin & Begley, 2004). According to Lincoln and Denzin (Lincoln & Denzin, 1994), authenticity in qualitative studies relates to whether the technique employed in the research study is designed to elicit relevant data to the research question. A number of specific strategies to

improve the authenticity of qualitative studies have been suggested (Maxwell, 2012; Whittemore, Chase, & Mandle, 2001). This research study employed: (1) rich data – intensive interviews which enabled us to collect “rich” data for this study; (2) triangulation – investigator triangulation was adopted to ensure credibility of the data. Additionally, the researcher actively engaged in critical self-reflection on potential biases and predispositions known as reflexivity. According to Johnson, researchers could become more self-aware and control their biases through reflexivity (R. B. Johnson, 1997).

Credibility, transferability, dependability, and confirmability were used as criteria to assess trustworthiness of the collected data (Y.S Lincoln & Guba, 1985; Schwandt, 2001). According to Schwandt, credibility refers to the issue of congruence between participants’ perspectives and the researchers’ representation of them (Schwandt, 2001). Therefore, it emphasizes whether the explanation fits the description and whether the description is credible (Janesick, 2000; Tobin & Begley, 2004). Although Lincoln and Guba (Lincoln & Guba, 1985) suggests different techniques that help investigators to increase the reliability of the data, this study employed: a) prolonged engagement; b) persistent observation; and c) triangulation.

Transferability refers to the generalizability of a study. In qualitative research, these concerns apply primarily to case to case transfer which is substantially different from external validity in quantitative research (Tobin & Begley, 2004). Additionally, this study attempted to increase the transferability by providing “thick” description of the phenomenon (Lincoln & Denzin, 1994). Thick description enables readers to visualize and imagine the research setting and the contents of the interviews. Next, dependability was assessed by a process of auditing. It is important to ensure that all research processes are logical, traceable, and clearly documented (Schwandt, 2001; Tobin & Begley, 2004). Finally,



confirmability (comparable with objectivity or neutrality) was used to assess the importance of results clearly derived from the data rather than results derived from researchers' imagination or bias (Tobin & Begley, 2004).

## **CHAPTER 4**

### **RESULTS**

This study sought to explore the understanding of physical activity in older African American women and factors that contribute to their decision to be physically active or sedentary. The goal was to explore perceptions, attitudes, and values about physical activity in older African American women. Furthermore, this study explored perceptions and reactions to current public health materials used to educate the general public towards physical activity.

#### **4.1 Participants' Demographic and Health Characteristics**

Detailed information about the participants' characteristics is presented in table 4. Women participating in this study live in three different localities within Champaign County: Urbana, Champaign and Savoy. Overall, women participating in this study had a mean age of 68.3 years old, and reported living in the community on average, 48 years. Ninety percent (n = 18) of the women reported having at least one child. Only 15% (n = 3) of the participants live alone, whereas 85% live with spouse or partner, children, or grandchildren. All the women in this study appear to have a good social network, since all of them reported their circle of friends as good or excellent. Thirty five percent (n = 7) of the women were divorced or separated and another 35% (n = 7) reported being married. Ninety percent (n = 18) practice some type of religion. Regarding education, it was observed that all women reported having graduated at least high school, and on average participants reported an annual income ranging from \$30,000 - \$39,999. Nineteen out of 20 reported having health insurance. Data collected on health beliefs revealed that all 20 women believed it is possible to improve their health through regular exercise, balance diet, and by stopping smoking.

Eighty percent (n = 16) of the women reported having at least one chronic disease and 75% (n = 15) reported taking at least one prescribed medication. The majority of the participants (55%) rated their health to be very good. Body Mass Index was found to be, on average 30.63 kg/m<sup>2</sup>, classifying the participants as obese. Twenty-five percent of the participants report at least one fall in the last 12 months and 35% expressed having a fear of falling. Only two participants reported difficulties in performing basic activities of daily living (i.e. walking). Additionally, tendencies towards depressive symptomatology were observed in 2 out of 20 women. These women reported feeling down, depressed, or hopeless during the month prior to the interview; or having been bothered by little interest or pleasure in doing things during the month prior to the interview.

**Table 4.** Participants' characteristics

	<b>Total (n = 20)</b>	<b>Active (n = 9)</b>	<b>Inactive (n = 11)</b>
<b>Age (mean, SD)</b>	68.3 (6.16)	66.11 (6.39)	70.09 (5.61)
<b>Education (n, %)</b>			
High School	5 (25)	2 (22.22)	3 (27.27)
Some College	8 (40)	5 (55.56)	3 (27.27)
College or more	7 (35)	2 (22.22)	5 (45.45)
<b>Years living in town (mean, SD)</b>	48.15 (20.97)	43.33 (22.70)	52.09 (16.63)
<b>Marital Status (n, %)</b>			
Single	1 (5)	1 (11.11)	---
Married	7 (35)	3 (33.33)	4 (36.36)
Divorced/Separated	7 (35)	4 (44.44)	3 (27.27)
Widowed	5 (25)	1 (11.11)	4 (36.36)
<b>Religion (n, %)</b>			
Yes	18 (90)	9 (100)	9 (81.81)
<b>Children (n, %)</b>			
Yes	18 (90)	8 (88.89)	10 (90.9)
<b>Living Status (n, %)</b>			
Alone	3 (15)	3 (33.33)	---
Someone live with me	17 (85)	6 (66.67)	11 (100)

**Table 4 (cont.)**

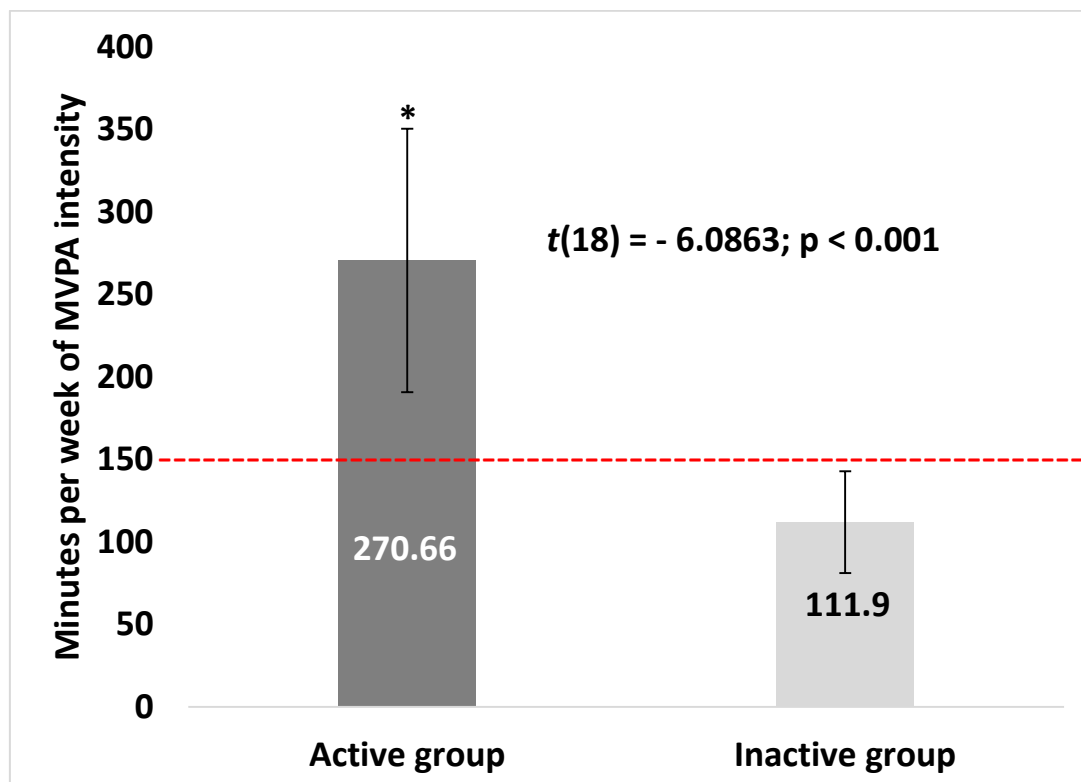
<b>Type of income (n, %)</b>			
Self-employment	6 (30)	4 (44.44)	2 (18.18)
Government	10 (50)	2 (22.22)	8 (72.72)
Retirement pension	11 (55)	4 (44.44)	7 (63.63)
<b>Income (n, %)</b>			
\$ 5,000 - \$ 9,999	1 (5)	1 (11.11)	---
\$ 15,000 - \$ 19,999	3 (15)	3 (33.33)	---
\$ 20,000 - \$ 29,999	7 (35)	---	7 (63.64)
\$ 30,000 - \$ 39,999	3 (15)	2 (22.22)	1 (9.09)
\$ 40,000 - \$ 49,999	1 (5)	---	1 (9.09)
\$ 50,000 and over	5 (25)	3 (33.33)	2 (18.18)
<b>Self-reported health (n, %)</b>			
Good	9 (45)	5 (55.56)	7 (63.64)
Very good	11 (55)	4 (44.44)	4 (36.36)
<b>Improving health though exercise, balance diet, and stop smoking? (n, %)</b>			
Yes	20 (100)	9 (100)	11 (100)
<b>Chronic Disease (n, %)</b>			
0	4 (20)	3 (33.33)	1 (9.09)
1 - 2	11 (55)	5 (55.56)	6 (54.54)
≥ 3	5 (25)	1 (11.11)	4 (36.36)
<b>Medication (n, %)</b>			
0	5 (25)	4 (44.44)	1 (9.1)
1 – 2	9 (45)	3 (33.33)	6 (54.54)
≥ 3	6 (30)	2 (22.22)	4 (36.36)
<b>Health Insurance (n, %)</b>			
Yes	19 (95)	8	11 (100)
<b>BMI (Kg/m<sup>2</sup>)</b>	30.65 (3.94)	29.23 (4.14)	31.82 (3.53)
<b>Difficult in ADL or IADL (n, %)</b>			
Yes <sup>a</sup>	2 (10)	---	2 (18.18)
No	18 (90)	---	9 (81.81)
<b>Depressive symptoms (n, %)</b>			
Yes	2 (10)	1 (11.11)	1 (9.09)
<b>Fall in the past 12 months (n, %)</b>			
Yes	5 (25)	2 (22.22)	3 (27.27)
<b>Afraid of Fallen (n, %)</b>			
Yes	7 (35)	4 (44.44)	3 (27.27)

BMI: Body Mass Index – calculated by the weight divided by the height squared;

<sup>a</sup> Participant reported some difficult in walking

#### 4.2 Participants' Physical Activity Level

The 20 women in this study had their physical activity level objectively measured by accelerometry. After data analysis it was found that 9 women achieved the national recommendations for physical activity of 150 minutes per week of moderate to vigorous intensity aerobic exercise and were therefore classified as active. Eleven women did not meet the recommendations and were classified as inactive. The following figure 1 displays the mean amount in minutes of moderate to vigorous physical activity intensity observed for both the active and the inactive group, as well as the cut off used as reference of the amount of moderate to vigorous physical activity recommended for health benefits by the Physical Activity Guidelines for Americans. A *t* test for two independent samples revealed that the groups were statistically different from each other.



**Figure 5.** Minutes per week spend in moderate to vigorous physical activity (MVPA) intensity observed for active and sedentary older African American women, including the 150 minute recommendation from the Physical Activity Guidelines (red dash line).

### **4.3 Identification of Major Themes**

Qualitative data collection involved photo-elicitation (photograph) and semi-structured in-depth interviews. During this phase, questions explored attitudes, perceptions, and values related to physical activity as well as questions regarding the degree to which the socio-cultural environment serves as a facilitator and/or barrier to physical activity. The theory-derived interview questions were developed based on the Socio-Ecological Model of Health Behavior (Stokols et al., 1996) and were supplemented by questions related to the health disparity literature (Brondolo et al., 2009; Fiscella et al., 2002; Gaskin et al., 2012; Gee & Payne-Sturges, 2004; Thorpe et al., 2008; D.R. Williams & Mohammed, 2009).

The interview transcripts were coded, analyzed and sorted into major themes. In order to establish validity and reliability of the emergent themes, triangulation was used to reach consensus about the themes that emerged from participants' stories between the researcher and two other researchers. After consolidating information from the photographs and the semi-structured in-depth interviews, the following themes emerged: (1) What Physical Activity Means to Me, (2) My Challenges, and (3) My Friends, Family and Community.

### **4.4. What Physical Activity Means to Me**

Physical activity, a healthy diet and other factors are important components of healthy living (Healthy People 2020). Regular physical activity has the potential to improve health and well-being; delay or prevent the onset of chronic diseases and disabilities, and reduce mortality risk. Therefore, it is recommended that every adult accumulates at least 150 minutes per week of moderate to vigorous intensity aerobic physical activity plus muscle strengthening activities twice a week (DHHS, 2008a). The What Physical Activity

Theme is divided into four related but distinct sub-themes: Definition, How Much, Why, and Healthy Living.

#### 4.4.1 Definition

A point of interest in this study was to understand how older African American women conceptualize physical activity. In response a question about defining the term 'physical activity', two main ideas were shared by the participants. In both active and inactive group of women, some individual's understanding of physical activity related to a broad concept that goes beyond traditional exercise routines, but rather was consistent with the concept of leading a physically active lifestyle. For example;

*"Well, I think it's keeping busy. I make sure that I get my heart rate up every day, I try to. I think even physical activity, if you were cleaning the house, would be doing something. So I like to keep moving most of the time. I also do strength training..."*  
(RM-62 - Active)

*"I think physical activity is anything that gets you up and moving. So it would be walking, bicycling, skating, any type of sports that you participate in... that's what it is, physical activity. Going to the gym, of course, but I don't think it's something that has to be that formal... I think anything that's moving..."* (CBg-66 Inactive)

However, other individuals in both groups expressed beliefs that physical activity and exercise are synonymous and are used interchangeably. For example;

*"... physical activity. Well I get up every morning and be in the workout place... physical activity to me is doing something physical, you know. I get on the bicycle thing; I get on the escalator [talking about the step up exercise equipment] ... I go to the room and uh, try to take care of my stomach and my back. I always try to do the stomach and back because back is important... I think that the yoga and all that stuff that's good exercise too. Zumba is good exercise too..."* (PP-73 Inactive)

*“... it would be going back to what I did when I probably was in my 30s. I just try to recall that. In my 30s, I used to get a – wake up in the morning with a floor exercise, followed by my stationary bike. And I would do that twice a day, in the mornings, in the evenings when I would come home. And I would say that was probably the most that I’ve done”. (CW-65 Active)*

In short, the quotes expressed that older African American women, regardless of physical activity status, conceptualize physical activity in two ways. Some understand physical activity in the “lifestyle” sense that is commonly used to promote physical activity by public health agencies, and some associate physical activity in a more traditional “exercise” sense, i.e. exercising at a specific place, duration and intensity.

#### **4.4.2 How Much**

Apart from understanding how older African American women conceptualize physical activity, an additional goal of this study was to assess participants’ knowledge about physical activity recommendations in terms of frequency, intensity, and duration of physical activity.

Some women in the active and inactive group expressed a lack of understanding for the amount of physical activity needed for health benefits. For example;

*“I can’t recall exactly what they said, but I’ve read some things in AARP about, you know, the over 50 group, and you know what’s going on with that, but I can’t quote anything specific. But I know that exercise is important.” (CW-65 Active)*

*“I probably have, I just don’t remember. It is a lot of things... but I’ve heard some of the statistics, I’ve heard, but I can’t quote them to you...” (MB-68 Inactive)*



*"I have heard on TV, they encourage you to do more exercising, yes. I have never heard how much they should do, but I have heard that we should do it. And they're encouraging us to do this..." (EB-62 Active)*

However, others in both groups had a more detailed understanding of the recommended frequency and duration of physical activity; however, usually without mentioning anything about intensity. For example;

*"Well, it's at least three times a week... Especially with my age group, or any age group, you should exercise at least three times a week. And then if you did five times a week, that's really good....for at least 30 minutes to an hour, you know.... (MG-62 Inactive)*

*"...at least three times a week doing something... At least two hours... I think a person should actively do something at least three times a week, because one is not enough" (LM-66 Active)*

*"... the least is three times a week. Monday, Wednesday and Friday though, now you can do it every day, or, you know, anything more than three... you really need to do is three times a week... anywhere from an hour... an hour and a half." (PP-73 Inactive)*

Some participants expressed the idea that individuals should be as active as their body allows them to be. The following quotes illustrate this;

*"I think you just do as much – your body will tell you when you're going too far. And when my body tells me I've had enough, I quit, and wait, come back another day..." (CB-80 Active)*

*"I do as much as I can, as the body will take... So I don't have a standard that I say, "OK, I need to do an hour's worth of this, or I need to do that..." (MB-68 Inactive)*

*“As much as their body will let them...and you know, like I know my limitation. If I feel that, you know I’m done...it’s up to the individual...So I think it’s up to the individual....That’s my point.”(KG-72 Active)*

In short, the interviews revealed that while some women, in both active and inactive group, do not know much about how much physical activity is recommended for individuals their age, others expressed a greater level of understanding regarding the frequency and duration of exercise. However, none of the participants made reference to the recommended intensity needed for physical activity to result in health benefits. Moreover, women in both groups expressed a belief that they should be as active as their body allowed them to be. It suggests that exercise frequency, duration, and intensity should be established by individual preference rather than by an external norm.

#### **4.4.3 Why**

I explored the understanding of older African American women about the benefits arising from physical activity. Physical activity has been associated with a variety of positive health outcomes related to both physical and mental health (Chodzko-Zajko et al., 2009; DHHS, 2008b). Several women mentioned the benefits of physical activity for both physical and mental health, as well as for quality of life and overall well-being. For example;

*“Well, I think physical activity helps reduction of diabetes...weight gain, which is also related to diabetes. I think it helps with breathing, for the lungs. I think it helps the excretory system. And of course, it helps – I think a lot of those chronic diseases... Probably arthritis... a lot of chronic conditions come from, I think, from a lack of exercise. Heart – it’s very important, I think, to the heart too.”(CBg-66 Inactive)*

*“... It’s very important to me... I want to live a long, and good, happy, prosperous life.... it helps my mental state of mind, to just – to walk, it helps me. I feel, like if I’m depressed or feeling low, I go on a walk and I forget all about it” (EB-62 Active)*

*“It’s something healthy... you’re taking your mind away from all the activities and the rushing’s and anxieties that you’re on that you’ve been going through the day.... helps you to relax. It slows the mind down, it helps with the breathing... your body is now relaxed, the breathing mode. The body is learning to breathe all over again [Yoga] (AD-61 Active).*

Others related physical activity to maintaining independence:

*“... so I don’t get stiff and can’t move and keeping my limbs, I should say applicable... as long as I keep moving and doing something in order to keep my muscles strong so that I don’t have to have help getting up and down... Cause I’m getting older and older and I can tell the body changes”. (MH-78 Inactive)*

*“...if you want to be helped, you have to get up and get moving, because if you don’t, at our age, you start slowing down anyway. And then of course you start getting stiffer, and then you need to do something to keep you moving...You know, because I know I can move around, and I take care of seniors and do a lot of things. And if I wasn’t in the program, wasn’t exercising, I wouldn’t be able to do it...” (CB-80 Active)*

*“... if you don’t exercise, you start losing, your muscle start, especially when you start getting older. Your muscle starts shrinking, getting smaller and everything. You’re not moving right. If you don’t stretch you stand and bend over. I don’t want to do that, you know ... so I gotta stay in shape so I can run or whatever...” (PP-73 Inactive)*

In short, the interviews revealed that while some considered the benefits of physical activity were related to the treatment and prevention of chronic diseases and overall health; others related its benefits towards prolonging independence. The perception of the benefits of physical activity was similar among the active and inactive participants.

#### **4.4.4 Healthy Living**

Another point raised by the women in this study was the relationship between physical activity and healthy living. Healthy living involves making healthy choices routinely; choices that helps individuals to be fit physically, mentally, and spiritually. Although encompassing a large array of factors, three important elements such as being physically active, eating well, and not smoking are crucial to staying healthy (Healthy People 2020). Along with healthy eating, which seemed to be a high priority for the participants, active and inactive women also mentioned physical activity as an important factors for staying healthy. For example;

*“Reasonable you know I don’t overeat and I try to get into some physical activity because I think that is important .... I think that makes for healthy living... That to me is if you have that balance between those very key components of your life...”*

*(PA-60 Active)*

*“It means choosing the right foods... like replacing the bad fats with the good fats, changing the way things are cooked, you know, prepared, so from fried, maybe to broiled, boiled, grilled, being mobile and getting some form of exercise...” (CBg-66 Inactive)*

*“... eating properly ... eating healthy foods, not necessarily eating just what I like. ... but I would say that eating better, incorporate some kind of physical activity daily... making sure that I do something physical daily...” (CW-65 Active)*

In summary, the interviews revealed that older African American women regardless physical activity status recognize that healthy choices, both eating well and incorporating some physical activity, are important elements for a healthy living.

This first theme with its sub-themes relates to older African American women's understanding of physical activity. This theme reflects their knowledge and beliefs about physical activity behavior. Knowledge and beliefs are considered individual characteristics and individual characteristics are part of the inner most level of the Socio-Ecological Model of Health Behavior upon which this study was grounded. These individual determinants of health behavior have the potential to influence a behavior either positively or negatively.

#### **4.5. My Challenges**

Physical activity behavior and its determinants are very complex. Researchers suggest that a variety of personal, social, and environmental factors may negatively impact the ability or likelihood of individuals to engage in physical activity (Barbosa et al., 2014; Gobbi et al., 2012; K. S. Hall & McAuley, 2010). This section describes the challenges described by older African American women in the interviews that may hinder them to engage in physical activity. The section consists of four sub-themes: My Health, My Responsibilities, My Finances, and My Neighborhood.

#### 4.5.1 My Health

Perceived health is a factor that can work in both directions. It can be viewed as a facilitator motivating physical activity or as a barrier detracting from physical activity (Bethancourt, Rosenberg, Beatty, & Arterburn, 2014). The interviews revealed that health issues often hinder individuals from physical activity. Although both group of women mentioned health problems, the inactive group of women emphasized them more. For example;

*“... right now I have an issue with lower back pain. The lower back pain is going – it generates down the buttocks, down the thighs, legs, and into my feet... So I believe that with the injury, right now, even though I try to do things, it’s still hindering me, and I’m not as active as I could be ... before I injured my back, I was doing a lot more. But since the injury, it’s really decreased.” (GT-62 Inactive)*

*“...We have quite a few people that are sick in our neighborhood..... some people just can’t do it [Physical Activity] for health reasons.... too many aches and pain, cripple most of them have knee trouble, hip trouble, arthritis, glaucoma and cataracts...” (JS-67 Active)*

*“... I had some surgeries and hip problems and it prevented me from doing so much... The activities were good, but then when it became not; it was because of my pain... and then I kind of backed off and stopped doing physical activities.” (MG-62 Inactive)*

However, the active group was more likely to identify health concerns that were related to psychological, emotional and stress. For example;

*“... We have a lot of challenges that a lot of other communities don’t have. There’s a lot of trauma in the African American community. That is not just something that, in many times, its recent trauma, its recurrent trauma, it’s like an*

*injury that never heals kinda trauma... So I think mentally you're drained, and I'm telling you it's you're drained mentally from the challenges that are, that you have to deal with, just by virtue of being African American, you're tired. You have limited mental ability to deal with everything else..." (PA-60 Active)*

*"African Americans do have high stress because of the way the world is... you might as well face the facts is that we're always trying to, Caucasians, just gonna be honest is always trying to stay on top..." (PP-73 Inactive)*

*"...the way life is in general, I mean, just so much stress, and African-Americans, we have more to go through... We've always had more to go through and deal with. We've always gone through more... we've always had struggles, and it's sad to say... African American race feels that way a lot of times (EB-62 Active).*

*"... people perceive you as different, OK. So you're not treated as the majority, you are treated as a minority, OK. So with the majority may have this type of stress, the minority has a double-dose of that stress. So that's kind of a built-in kind of a thing that minorities deal with... so that sets up a lot of stress, unnecessary stress, I call it.... So that social interaction doesn't develop for minority – for the majorities, it would develop. It would be a natural instinct, because people will be attracted to people that they feel better alike, but not different." (CW-65 Active)*

In short, not only physical health problems may be preventing this population from being more active, but also the historical and constant challenges faced by African Americans may place on them high levels of psychological and emotional stress may also play a role.

#### 4.5.2 My Responsibilities

Studies in the literature suggest that family responsibilities often serve as a barrier to physical activity in older adults (Bopp et al., 2007; Nies et al., 1999). Some participants expressed their role as caregivers in their families by discussing how looking after others prevents them from being physically active. For example;

*... [She] has cancer, and every time she has an appointment I go down to talk with her and the doctors.... So I mostly keep the suitcase open and certain things in it, so when she calls I get on my way. That's the big thing why I am not in physical activity classes; I want to still have that freedom, when she calls I go." (CJ-74 Inactive)*

*"...now they're challenged with it... grandmothers have to try to be up at the school with the kids, try to, make sure that they make it to the school, make sure that they are getting their work. And they're taking care, they are the caregivers of these children, and they've done their time, they're tired! They don't have much energy to do much of anything else..." (AD-61 Active)*

*"...this is where I start in the mornings. I go to my granddaughter's house and pick my great-grandchildren up, and put this one on the bus. And then I have to get her off the bus. Five days a week... Helping them get ready for school, and making sure that they get to school...I am the day care provider, basically, or babysitter... She wants to go anywhere; she's a little diva... So I'm doing a lot of sitting and driving (GT-62 Inactive)*

The interviews reveal that regardless of whether they were active or inactive, older African American women often serve as caregivers for grandchildren and others, and such family demands may be preventing them from engaging in more physical activity. However, as described later in this section, caregiving was also sometimes expressed in a more



positive context enabling physical activity. Being physically active at home was one strategy that was mentioned to overcome such challenges. For example;

*... I have an exercise bike that I do get up and get on and I usually try to do 15 minutes in the morning and then I usually do 30 minutes at night.” (PA-60 Active)*

*“This is the Glider that’s in my basement, and sometimes I go down there and do some repetitions on this. I can watch the news, or whatever program I want to, while I just keep moving on the Glider.” (CBg-66 Inactive)*

However, primarily participants in the active group mentioned that they consciously incorporate physical activity into their daily routine. For example;

*“... Yesterday for instance, I went out, my grandson and I. We went out to County Market and I had to go to Walgreens, I had to go to the Dollar Store, and I had to go to the video store. All of these and the gas station, and all of these place set around County Market and I said hey, I’m going to leave the car right here, and I’m just going to, rather than to spend gas I’m just going to exercise myself and walk to these different places. And that’s what I did. And I felt so good about it.” (AD-61 Active)*

*“I consciously said you know I’m not going to be riding my exercise bike I chose to pick the parking spaces further away from the door so that I could have more steps in my day.” (PA-60 Active)*

*“Well, I purposefully park – I don’t park at the door... I purposefully – and my friend Georgia, we do it too – I purposefully park far away from it, like you’re seeing, and then I walk up.” (LM-66 Active)*

The interviews revealed that participants in the active group searched for strategies to incorporate physical activity into their daily routines.

#### **4.5.3 My Finances**

It is known that many types of physical activity can be performed with no costs; however, economic issues and cost of memberships has been reported as a barrier to engage in physical activity in several studies (B. Belza et al., 2004; Kirchhoff, Elliott, Schlichting, & Chin, 2008). Economic issues along with costs of facilities were factors identified by the women participating in this study as possible barriers to physical activity. Participants in both groups mentioned that African Americans generally live on a fixed income and therefore access to facilities that charge may be challenging. For example;

*“... Of course, they are on fixed incomes... having to pay a fee to do it, a lot are not going to... with some, if they have larger families, then to consider the whole – it’s just too much to pay for the whole family for a gym membership and therefore, since everybody can’t go, nobody goes (CBg-66 Inactive).”*

*“... when it comes down to fitness, African Americans I just think are traditionally hard working people in terms of physical labor... when you look at some of the gyms and some of the fitness centers their memberships were just astronomical.” (PA-60 Active)*

*“... a lot of African-Americans don’t have that excess money... with myself, I think with my income of what I do... I just kind of watch my pennies a little.” (DT-72 Inactive)*

The interviews suggest that economic issues may deter some African American women from engaging in more physical activity because of the high costs of access to facilities and memberships fees.

#### **4.5.4 My Neighborhood**

A friendly neighborhood can be a facilitator for physical activity; however infrastructure problems and feeling unsafe may detract individuals from being active. Studies investigating barriers for physical activity have often found unsafe neighborhoods to be a barrier for physical activity (Bragg, Tucker, Kaye, & Desmond, 2009; Lees et al., 2007).

In this study women in both groups perceived their neighborhood as unsafe for physical activity mentioning poor infrastructure and problems related to bad sidewalks and poor lighting. For example;

*“You see this here [talking about a cracked sidewalk]. I almost tripped and fell on my face. My friend ... actually did that and she had to go to the doctor and they had to do a MRI. She fell flat on her head. That is like about 2 inches up and if you are walking and you are not looking, anybody not even an old person but even a child could fall and hurt themselves” (KG-72Active)*

*“... I don't like to go [walk in the evening, night]; I don't like to go to places that I can't see... It's not too much light over in our area because we're not paying to the city lights up there. (PP-73 Inactive)*

In addition, a few others discussed their neighborhood in the context of fear of crime. Although few participants in the active group mentioned lack of safety in this context, 8 out of 11 women in the inactive group mentioned incidents and situations happening in their neighborhood that made them fearful. For example;

*“... and by the time I get to a point where I stop, it’s dark, and then I don’t want to walk when it’s dark by myself... I don’t think it’s wise.... I’ve heard of incidents ... Well, not just night, but even in the daytime, here in Champaign-Urbana... people are stalked, or you know, followed to their homes, or in fact, I think it was last week where a lady was followed near her home and then she was attacked, robbed, and I think her cell phone was taken. (CBg-66 Inactive)*

*“... the least I like about it, is at night. And that doesn't necessarily mean this in my neighborhood but you hear some shooting.” (GH-66 Inactive)*

*“...just with the times changing, and with the way people are noticing where you are, and I was alone, and...I miss it. I really do. I miss having the freedom of doing that [walk around]... a good friend of mine, she walks all the time. And she said the same thing that I said though. She’s kind of changed the whole thing because she doesn’t feel as comfortable as she used to... because of the things she would see, or people that were kind of hanging around, or something.” (LP-73 Inactive)*

Safety in the neighborhood was expressed in different contexts such as poor infrastructure related to sidewalks and lack of light, and also related to violence and fear. It was noticed the inactive group of women stressed crime-related fear more frequently than the active group.

The second theme explored factors that negatively influence physical activity participation. It was observed that personal attributes such as health and economics, as well as socio-environmental factors such as family and neighborhood might have a negative impact on physical activity in both the active and inactive groups. With respect to the socio-ecological model, these factors are related to not only in proximal factors (personal and interpersonal), but also more distal factors such as the organizational and community level.

## 4.6. My Friends, Family and Community

A variety of personal and socio environmental factors can work towards enabling physical activity (Mathews et al., 2010). This section describes the facilitators for physical activity that were discussed in the interviews. The section consists of four sub-themes: Friends and Family, Churches and Senior Centers, Fitness and Recreation Centers, and Green Area and Parks

### 4.6.1 Friends and Family

Social support has been reported as facilitator for physical activity (Bopp et al., 2007; Harley, Katz, et al., 2009). Friends and family often provide social support that helps individuals be more active. Regardless physical activity status, to some women, friends enabled them to be more active. For example;

*“... She’s my walking buddy, so we walk inside because she doesn’t like to walk outside... When I was still working, she used to walk out there, and so I would talk to her on the phone. Then when I retired, she said to come walk out there with her. I used to have another walking buddy, and we used to walk outside, but then my other walking buddy couldn’t walk outside anymore, so I started walking with her. She walks inside... So we around there four times.” (RM-62 Active)*

*“... actually a friend and I were looking for somewhere, to have, to take classes. Like Zumba and all of that... so we meet three to four times a week there. Sometimes about three times sometimes four times. It depends if we walk twice a week or once a week. We used to walk five days a week but we needed to workout.” (PP-73 Inactive)*

Women in both groups described how they are active together with their families. For example;

*“I have children that are athletes who like to go out in the park and throw Frisbees and kick ball and I have five grandchildren that I’m chasing after in the summer. We do a lot of outdoor activities ...” (AD-61 Active)*

*“My daughter lives in Rantoul... I go up to help motivate her, as well as myself, to walk this track. We don’t run it, we walk it. And we just have mother and daughter time, and that’s when I go up to her house, at least once a week, and we walk the track....” (MG-62 Inactive)*

However, family commitments may also detract individuals from engaging in physical activity. One woman said:

*... [She] has cancer, and every time she has an appointment I go down to talk with her and the doctors.... So I mostly keep the suitcase open and certain things in it, so when she calls I get on my way. That’s the big thing why I am not in physical activity classes; I want to still have that freedom, when she calls I go.” (CJ-74 Inactive)*

*“... I don’t get up there for the exercise classes ‘cause usually in the morning I’m busy doing something at home doing the cleaning, cooking as well as taking care of granddaughter ... I’m stuck in the house and I’d rather be outside” (ER-77 Inactive)*

In short, the interviews revealed that friends and family are sometimes viewed, as facilitators supporting physical activity but that being a caregiver may also detract from individuals being more active.

#### 4.6.2 Churches and Senior Centers

Organizations such as churches and senior centers often provide support for physical activity. Both active and inactive women mentioned initiatives developed by their churches to promote physical activity. For example;

*“...My pastor is a big health-conscious person... he tells us about our weight and our lifestyles at least two services a month... there’s a competition going on between some of the parishioners, wearing this little monitor to count their steps, how many steps they’ve made. And we have a walk-a-thon once a year, and the biggest thing that we do, our bishop has us do, is we have what’s called a love clinic...” (GT-62 Inactive)*

*“... My pastor is very much into health and wellness. They bring in health clinics, free health clinics ounces a month where people can get those checkups and make sure that they are monitoring what’s going on with them health... They have a get up and move... He gets up out and we maybe walk around the park and he’s always challenging us... we’ll take those long walks ... so we, our church is very health conscious.” (KG-72 Active)*

Women also talked about senior centers as a place for socialization and also as a facilitator for physical activity. In addition to some of the social activities taking place in the local senior centers, physical activity is also often part of the programming. Women in both groups discussed the importance of the community center as a stimulus for physical activity. For example;

*“... most of the time I try to go down to Douglas Center at least for forty-five minutes a day maybe not often Fridays but most of the time for about forty-five minutes that's where I do all my practicing.... I'll walk over to Douglas*

*Center; they had music so I'd walk over there for maybe a half-hour to forty-five minutes. I try to do it on a daily basis..." (GH-66 Inactive)*

*"It is Douglas Center... we have a lot of programs going on for the seniors... We play bingo... We go on trips... We have treadmills here at the center that we can use... and they have different types of games here at the gym... it had brought out a lot of seniors to play [Pickle Ball]... And this is really the place where most of the African-American people come..." (CB-80 Active)*

*"... It's our dance at Douglas Center, and the young lady that's in the blue, she is the dance instructor, and it's about six of us that participate in the program, and it's a good form of exercise. We're doing line dances, and it's a good form of exercise... for the dance, we go every Thursday, and we've done three lessons, and we're doing a total of eight lessons for dance... (DT-72 Inactive)*

#### **4.6.3 Fitness and Recreation Centers**

In addition, participants also mentioned having access to facilities such as fitness and recreation centers as a facilitator for physical activity. Some active and inactive women discussed the activities and equipment that are available in fitness centers. For example;

*"...it's called H-I-I-T. High Impact Interval Training... high and low impact training. We do some weightlifting, then uh, we do some aerobics, like she sends us around the gym just to switch it up. You know change it up. And that particular day she had us walking over or jumping over obstacles, you know small. That's one class. The other class that I do is Pilates....a little yoga and a little Pilate... another class called Forever Fit too... the last 15 minutes we do some weightlifting, some bounce, that type of thing. I try to go at least three times a week... sometimes I do two classes in a row." (MH-78 Inactive)*



*“...I have a picture here of the Planet Fitness center out on Land Park – Glen Park, sorry, and I go there – try to go there three days a week, Monday, Wednesday, Friday for exercise. And I enjoy, it’s a lot of people, lot of various activities going on in there, and different treadmills, and all kinds of exercising equipment. So it’s a great place to go to get exercise.” (CB-80 Active)*

However, the costs of memberships in such facilities may be a barrier. Some individuals in both groups expressed their concern about costs, suggesting that cost may restrict access to such places. For example;

*“... when it comes down to fitness center, African Americans I just think are traditionally hard working people in terms of physical labor... but, when you look at some of the gyms and some of the fitness centers their memberships were just astronomic.” (PA-60: Active)*

*“... of course, having to pay a fee to do it, a lot are not going to... with some, if they have larger families, then to consider the whole – it’s just too much to pay for the whole family for a gym membership and therefore, since everybody can’t go, nobody goes.” (CBg-66 Inactive)*

#### **4.6.4 Green Areas and Parks**

Living in a friendly neighborhood with access to outdoor destinations and with good infrastructure can be a facilitator for physical activity. Built environments such as green areas and parks enable physical activity (Heath et al., 2006). Nearby green areas and parks were identified by some individuals to be a facilitator for physical activity. For example;

*“This is a picture of my neighborhood where there’s a lake, and we have these walk trails. And you can walk the complete trail, and it’s probably two and a half miles, if*

*you do the complete trail. And normally, in the summer – spring and summer, I like to walk those trails, because I like the outdoors...” (MG-62 Inactive)*

*“I had a park around the corner. Oh well actually I had a good neighborhood because just about a block and a half there’s another park, one of the main parks in Champaign. There’s a water park there... This is the park where a lot of walkers walk around the park. I don’t know if it’s estimated to be a couple miles, I don’t know, but it’s there. And so it, it is conducive to a lot of physical activity.... So it’s a lot of activities going on.” (PA-60 Active)*

*“The park is about a half a block, I guess. I’d say half a block, not even – it’s not that far... It’s called Johnson Park, and it’s on – it’s on Golden view Drive, and it has a half-mile trail that you can walk through... if you walk around twice, you know, walked a mile... The park itself is really big.... and it has a marked trail... from one end of the circle to another, you have walked a half mile...” (MB-68 Inactive)*

However, the perception of not feeling safe in the environment may detract from engagement in physical activity. For example, interviews from the inactive group revealed that 8 out of 11 women in this group perceived some degree of lack of safety mainly pertaining to violence. For example;

*“... I used to even walk over to Parkland and walk all the way around the back of it and come back and everything. And one thing I noticed they started doing was—I guess so many people were walking at that time of the morning where they started a little safety patrol, like people that would drive around as you were walking... So I—as time went by, I would see little things—well of course, things changed... one thing that really got me one day—I saw a couple of guys standing out on a porch. I didn’t know who lived at that house. And they had their hoods on their head and they just kept watching me, you know...so it did make me kind of nervous though...” (LP-73 Inactive)*

*“... I see it on the news in Decatur, you see shooting in the neighborhoods, and then you see some of it over here, too, but people are concerned about those type things. And then they kind of withdraw them of what they wanted to do, because they just fear... the thing of fear. (MG-62 Inactive)”*

Despite some concerns about safety and costs, the neighborhood was generally perceived to be a facilitator for physical activity. Both active and inactive older African American women recognized friends and family to often be supportive of their physical activity choices. Moreover, faith- and community based organizations as well as fitness clubs were also perceived to be promoters of physical activity in both active and inactive women.

This third theme with its sub-themes focused on describing factors that served as facilitators for physical activity among older African American women. It was observed that the factors positively influencing physical activity relate to the second and the third levels of the Socio Ecological Model, i.e. the interpersonal and organizational levels. The friends and family described by the participants as facilitators for physical activity are considered to be elements of social networks. However, family was also mentioned in a negative context preventing older African American women from being more physically active. Churches, senior centers, fitness and recreation centers and local parks all represented places that facilitate physical activity. All of these facilities comprise the third level of the Socio Ecological Model, i.e. organizational. Therefore, it is possible to observe the complexity of factors influencing physical activity and the dynamic of factors that can impact physical activity.

In conclusion, the interviews with both active and inactive women showed that regardless of physical activity status, older African American women conceptualize physical activity in many different ways. Some women view physical activity as synonymous with exercise, while others have a more nuanced understanding of physical activity. Few women knew much about the intensity of physical activity needed to obtain health benefits. Regardless of the ways in which the women conceptualized physical activity, they reported a variety of barriers and facilitators to physical activity within individual and socio environmental domains.

#### **4.7 Focus Group: Public Health Messages**

This study also explored perceptions and reactions to current public health materials used to educate the general public towards physical activity. Three different messages used by nationally known public health agencies to educate the general public towards physical activity were presented for comment to the participants in an active and an inactive focus group. First, participants were asked to rate each material on a scale from 1 to 5 in terms of clarity and content, 1 being poor and 5 being excellent. The mean rate attributed by the participants for each of the materials for each group was found to be similar. The following table 5 summarizes the evaluation made by the participants in each group for each of the three sets of materials.

**Table 5.** Participants’ evaluations on three different materials used to promote physical activity among adults and older adults. Information presented as mean and standard deviation.

Message	Active Focus Group (n = 5)	Inactive Focus Group (n = 5)
Physical Activity Guidelines from the – CDC	2.1 (.74)	2 (1)
Be Active Your Way	3.4 (.42)	3.8 (.45)
Exercise and Physical Activity – NIH	4.7 (.45)	5 (0)

CDC: Center for Disease Control and Prevention; NIH: National Institute on Health

Second, a focus group discussion in each of the groups was conducted to explore the participants’ reactions and perceptions regarding the materials. According to Table 2, the brochure from the National Institute of Health – “Exercise and Physical Activity” was perceived to be the best in terms of clarity and content followed by the brochure from the Department of Health and Human Services – “Be Active on Your Way.” These scores are probably due simple language and abundant illustrations and the fact that the information is presented concisely and in a step-by-step manner. A quote from a participant in the inactive group best describes the women’s preference for the mentioned materials:

*“...I like the use of various cultures... they are easy to read, they are easy to comprehend and read. The one NIH book it’s more visible and it is more compact and it gives you all the instructions that you need right there. The be active sheet, it’s compact and it doesn’t give you a lot but it gives you enough to get started... activities that can help you get start...they even tell you how*

*to make it safe, reduce risks, injuries... so I think it's pretty throughout... it should be placed in every African American home. I think every African American home should have one of these.” (CBg-66 Inactive)*

Although participants expressed a positive impression regarding two of the three materials presented, some issues regarding language and types of activities used as examples in the materials were raised during the focus group discussion. After analysis of the issues, two themes emerged: We May Have Trouble in Reading It and It Does Not Reflect Us.

#### **4.7.1 We May Have Trouble in Reading It**

Language and communication was an issue that emerged from both focus groups. Language and communication was discussed in terms of verbal language but also in terms of visual imagery. Participants in both focus groups talked about how messages from the Centers for Disease Control and Prevention (Physical Activity Guidelines for Americans) are confusing and challenging because of the difficult language, technical terminology, and information overload. For example;

*“... Not thought-out, but some people might not know what moderate is, you know, to intensity... because you do have a lot of what you call the average Joe, they're not middle class, they're not gone to college, half of them really basically have not even finished high school... people like that, which is call the average Joe, you are going to have to do – break it down in just a little bit more, what they said, layman's terms...” (AD-61 Active)*

*“... I think overall, some of this, you know, it’s brought out good... but then some things, the words, need to be brought down to another level, I think that some of it could be a little elevated for some people... if the seniors, they may be having problems with the reading... so they can’t relate or read all those words...some African American descendent would have trouble with this... it’s way too much information, it’s information overloaded...” (GT-72 Inactive)*

Such problems appeared to be less evident in the Be Active Your Way brochure. However, one participant in the inactive group still expressed some concerns about the use of technical terms in the document, stating:

*“... it’s a little bit more condensed than the CDC paper and it doesn’t give you what the, all the wordings that the CDC paper does... it’s a little bit easier to read but you’d have to be a reader, you have to be knowing what some of these words means like muscle strengthening, the aerobic part, cause everybody don’t know what aerobics is... a lot of people take a different connotation than what it is.” (MB-66 Inactive)*

Others in both active and inactive groups stated that such material was enhanced by making the message more compact, more visual and by providing some examples that may help them to better understand some of the technical terms used. For example;

*“... actually I like the questions there cause it kind of targets you and if you’re interested in the questions you know I can just read this little snippet here, I don’t have to read the whole document to find the answer to my question... this sheet is more compact and it doesn’t have as much information, additional information in it. It’s telling you to do this, this and it tell you, and it*

*gives you a few brief things... it has the vigorous activities and the moderate activities which you can identify with..." (LP-73 Inactive)*

*"... It's more colorful, it has perked my interest. I'm a visual learner... I like just the bar on the bottom that says, "Be active, healthy, and happy". I think those are active words... I want to be active, healthy, and happy... I like the fact that they use diversity in action pictures to show you... (CBg-66 Inactive)*

*"... I think there's some clarification as to some examples of some moderate activities, and vigorous activity... I think the front is condensed into a clear definition of how much physical activity you need, in the front part of this... so it's condensed in just some short little blurbs, so I don't have to read a lot. And when you finish this little blurb, you know exactly what that means... So I think it is just about as much as you would need to know..." (PA-60 Active)*

There were few language and communication concerns raised regarding the "Exercise and Physical Activity" brochure from the National Institute of Health. Language was mentioned only in a positive context for the participants of both active and inactive groups. Women in both groups commented on how accessible the message is by talking about the easy-to-read format that appeared, the balance between visual illustrations and instructions and detailed explanations. For example;

*"... I really like it, it's simple, and it has a beautiful black woman on the front... I think that the instructions for the exercises are easy to ready... they basically word it easy... and they are not long and drawn-out...and them of course having the illustration, kind of step by step, helps because you can actually*



*see a picture and associated with the instructions you have... I like it because they have actually broken it down... they go in-depth, thinking about beyond a certain class of people. And it's taken down where they can sit, and makes them want to read... ” (CW-65 Active)*

*“... So they packaged it well, and as you begin to read, the language, not only the pictures, gets you a little bit interested in it... In addition I noticed the charts, the logs, the records... and I liked the demonstrations on how to do it... it breaks it all down for you. It lets you know step by step what you're going to. You're going to get ready to exercise, you're going to get set to exercise and strengthen and fix your body... it explains to you why you're doing these exercises...” (MH-78 Inactive)*

In short, the focus group discussions revealed that the language employed in some messages used to educate the general public may be too complex; and therefore, may be working as a barrier that detracts from individuals' clear understanding of content. Since these messages are used to inform the general public about physical activity and exercise and to empower them through knowledge, the purpose may not be being achieved. Knowledge is considered an individual determinant that may have an influence on behaviors. Individual factors such as knowledge, beliefs and others consist of factors aggregated into the most inner level of the Socio Ecological Model of Health Behavior.

#### 4.7.2 It Does Not Reflect Us

Another theme that emerged from the focus groups discussions was It Does Not Reflect Us. Despite acknowledging the fact that examples of activities helped them better understand some technical terms, the women in both groups participating in this study were concerned about the examples provided in the materials. Individuals in both groups mentioned that many of the examples described in the messages do not reflect the older African American population. This may be because historically, African Americans did not have the opportunity to take part in many of the activities listed in the materials. For example;

*“...I was thinking about something the other ladies were talking, that for us, for black women... so when you say physical activities, and you think about doing exercise and doing sports all of that, that time has not been there for them... they’ve being active, doing from sun-up to sun-down, just doing stuff... there were restrictions on the physical activity for black Americans... you couldn’t even go to a public park 50 years ago and just hang out, without being suspect. You couldn’t go to the pool. You couldn’t even go swimming in the pool. You were restricted. You certainly couldn’t hang out at no track in the high school and walk around the track at a high school, and be suspect. You couldn’t go to a public beach and swim...” (CW-65 Active)*

*“... it has a lot to do with economics. If you’re on a fixed income, you just about got that little bitty money down just to the penny. As to where you don’t have money to do the water aerobics, cause that’s not free cause I’ve done that before, the only thing I actually, the only that could be, not cost you*

*anything is playing softball, volleyball, and dancing. That's about all... looking at these lists [examples of activities provided in the materials for moderate and vigorous intensity] to me I still keep going back to the black versus white, whereas these are not the things we have thought of all of our entire lives."*

*(MB-Inactive)*

In short, the interviews revealed that many of the examples used in the materials disseminated to promote physical activity and exercise among the population seems to not reflect the reality of older African Americans. Apparently, the legacy of segregation, racism, discrimination and factors such as economic issues limit African Americans from taking part in many of the examples described in the materials.

In conclusion, the focus groups revealed that not only language but also the inability to visualize themselves carrying out the activities described may be barriers to clear understanding or even to receiving and interpreting messages used to promote physical activity. In fact, researchers have noted the importance of matching the cultural characteristics of minority populations with public health interventions in order to enhance receptivity, acceptance and salience of health information and programs. Belief systems, religious and cultural values, life experiences and group identity are considered powerful filters through which information is received (Thomas, Fine, & Ibrahim, 2004). It is noteworthy to point out that these findings provide important information that can help to elaborate future, more culturally sensitive messages aimed at promoting physical activity within this population.

## **CHAPTER 5 DISCUSSION**

### **5.1 Discussion**

The primary goal of this study was to explore the understanding of physical activity in older African American women and factors that contribute to their decision to be physically active or sedentary. The *raison d'être* for this study lies in the fact that African Americans face a disproportionate burden of chronic diseases compared to other racial groups. In addition, African Americans present with one of the lowest rates of physical activity participation, which place them at high risk for experiencing negative health outcomes associated with a sedentary lifestyle. An increased understanding of the relationship between physical inactivity (Kohl et al., 2012) and its associated negative health outcomes (Blair & Brodney, 1999; Lee et al., 2012) has led researchers and public health agencies to increase efforts to assess and understand factors influencing physical activity participation. A major goal of this effort has been to develop strategies and interventions aimed to promote a more physically active lifestyle. A number of studies have found that personal and socio-environmental factors may positively and/or negatively impact physical activity in different populations (Belza et al., 2004; Chang, Nitzke, Guilford, Adair, & Hazard, 2008; Cohen-Mansfield, Marx, & Guralnik, 2003; Gobbi et al., 2012; Mathews et al., 2010; Purath, Van Son, & Corbett, 2011; Siddiqi, Tiro, & Shuval, 2011). However, less attention had been paid to underserved populations, particularly older African American women. Older African American women are a particular vulnerable group for physical inactivity and resultant chronic disease and conditions. This group often presents with high rates of inactivity (BRFSS, 2011; Crespo et al., 2000; Troiano et al., 2008) and high rates of chronic diseases, such as diabetes and hypertension (Borrell, 2009; Selvin, Parrinello, Sacks, &

Coresh, 2014). It remains unclear why African Americans exhibit higher rates of chronic diseases and disabilities compared to other racial groups. Moreover, factors influencing the decision to engage and sustain physical activity in this population need more clarification. Therefore, a primary goal of this study was to explore whether perceptions, attitudes and values about physical activity in older African American women differ systematically between active and sedentary individuals.

The first theme that emerged in our qualitative investigation was “What Physical Activity Means to Me”. This first theme is nested in the inner most level of the Socio-Ecological Model of Health Behavior, i.e. related to individual attributes (e.g. knowledge, beliefs, etc.). It was found that both active and sedentary participants in this study conceptualize physical activity in a similar way. While we did not find systematic difference between active and sedentary individuals, it was clear that not everyone in our study defines physical activity the same way. Some participants, (both active and sedentary), think of physical activity in a broad manner that encompasses a wide range of activities, including traditional exercise, as well as, “lifestyle activities” such as gardening, housekeeping, and walking the dog. This broad interpretation of physical activity is consistent with the definition most frequently used in contemporary public health initiatives (Chodzko-Zajko et al., 2009; DHHS, 2008b). However, other individuals appear to be using a more traditional interpretation of physical activity that is synonymous with “exercise”, i.e. an activity that occurs at a specific place, usually for a specific duration and intensity, and often with the specific purpose of increasing physical fitness (Caspersen et al., 1985; Chodzko-Zajko et al., 2009). Our finding of different interpretations for the “meaning” of physical activity is consistent with the outcome of studies conducted by Wilcox and colleagues (Wilcox et al., 2005; Wilcox, Richter, Henderson, Greaney, & Ainsworth, 2002). For instance, in 2005,

Wilcox and colleagues (Wilcox et al., 2005) conducted a qualitative study to examine perceptions, barriers and motivators related to exercise in underactive African American and White women over the age of 50 living on the West Coast of the United States. The authors observed that regardless of race, women in their study viewed physical activity as broader than exercise. According to the authors, the definition provided by their participants were generally consistent with those used in public health for physical activity. However, in another study using focus group discussions, Wilcox and colleagues (Wilcox et al., 2002) found that African American women living in South Carolina aged 19 to 51 thought of physical activity as structured exercise. Taken together, these findings suggest there may be a need for better public health education around the topic of the diverse nature of physical activity, with a particular emphasis on the wide variety of options available to an individual who is contemplating becoming more active. It seems to be important to clarify that physical activity does not need to take place in gyms or fitness centers and that many different activities can be beneficial (e.g. washing the car, gardening, household tasks, active commuting transportation, etc.) (Caspersen et al., 1985). This is particularly important due to the fact that, in our study, some sedentary women in particular expressed a dislike for traditional exercises regimes while at the same time being less aware of alternative options that they might have found more accessible, more enjoyable, and more empowering. Stimulating physically active choices among previously sedentary individuals constitutes a public health priority. Clarifying subtle differences between traditional and contemporary perspectives on both exercise and physical activity is important if we are to help sedentary individuals build more physical activity into their daily lives.

The findings of this study suggest that both active and sedentary older African American women appear to have a fairly good understanding of the benefits of physical

activity for health and independence. Moreover, it was observed that the women in this study recognized physical activity and healthy eating as important components of healthy living. These findings are in line with the study conducted by Belza and colleagues (Belza et al., 2004) that investigated factors influencing physical activity and exercise among underserved, ethnically diverse older adults. The authors observed that participants in their study expressed the notion that both physical activity and healthy nutrition are important components of healthy living. A recent review and position stand from the American College of Sports Medicine confirms that physical activity has the potential to improve health and well-being, prevent or delay the onset of chronic disease and disabilities and reduce the risk of mortality (Chodzko-Zajko et al., 2009). A review of epidemiological studies concluded that physically active individuals have a 30 – 50% lower risk of Type II Diabetes than sedentary individuals. In addition, the authors observed that physical activity confers a similar reduction in risk for coronary heart disease (Bassuk & Manson, 2005). It is important to highlight that both these conditions are highly prevalent among African Americans. As observed in the present study, both active and inactive groups are well informed about the benefits of physical activity for health. In fact, knowledge is a determinant of behavior that is part of the individual level of influence regarding physical activity within the Socio Ecological Model upon which this study was grounded. Knowledge and belief in the health benefits derived from physical activity actually seem to be more helpful in motivating initial involvement. As pointed out by Dishman (Dishman, 1982), the level of one's knowledge does not necessarily translate into sustained behavior change. Over time, perceived feelings of enjoyment and satisfaction appear to better predict higher levels of adherence to physical activity and exercise (King, Taylor, Haskell, & Debusk, 1988). Dishman's idea that knowledge does not necessarily translate into behavior is

reinforced by the findings of this study and others. In our study, the sedentary group expressed similar levels of knowledge regarding physical activity and health compared to the active group. An early study involving over 400 older adults aged 65 to 84 found that levels of knowledge about the specific health benefits of physical activity were high among the participants. The authors observed that nearly 95% of their sample believed that physical activity is beneficial; however, 51% of their sample was considered inactive for health benefits while 79% believed that they did enough to keep healthy (Crombie et al., 2004). In the present study, neither socio-demographic variables nor the participants' health characteristics could be used to explain the physical activity levels found among the participants in our study. A possible explanation could be related to the suggestion made by King and colleagues (King et al., 1988). The active group of women in the present study may have used their knowledge and beliefs about physical activity as motivation to start initial involvement and later found the enjoyment and satisfaction necessary to continue engaging in such behavior. This may be true, because the strategy of incorporating physical activity into a daily routine was observed only in the active group of women participating in this study. Apparently, this group is more able to make use of opportunities available in their social environment to keep active compared to the sedentary group where such strategies were not observed.

In 2008, the federal government of the United States issued the Physical Activity Guidelines for Americans, which is a comprehensive document in which guidelines for physical activity are presented for different age groups (DHHS, 2008b). The guidelines suggest that individuals aged 65 years and older should accumulate at least 150 minutes per week of moderate to vigorous intensity aerobic physical activity for health benefits. This study found that while some women in both active and inactive groups present a good



understanding of the amount of physical activity needed in terms of frequency and duration, others had no idea of how much physical activity individuals in their age should perform. Although some participants mentioned frequency and duration, none of the participants addressed the importance of the intensity of physical activity needed to obtain health benefits. Along with frequency and duration, intensity is a critically important component stressed by the physical activity guidelines for achieving health benefits. This is an important finding of our study. Public health efforts have been made towards moving completely sedentary individuals to some level of activity (Task Force on Community Preventive, 2002) in different settings (e.g. family, workplace, communities and clinical settings); however, such initiatives seldom adequately take intensity into consideration. There is solid evidence in the physical activity and exercise literature stressing the importance of not only frequency and duration but also intensity in order to achieve health benefits (e.g. delay or prevent the onset of chronic diseases and disabilities) (Chodzko-Zajko et al., 2009; DHHS, 2008b). Therefore, efforts should be made towards clarifying the importance of all three components. Our findings suggest that the participants have a fairly good understanding regarding frequency and duration, therefore, more emphasis should be placed on the importance of intensity; i.e. moderate and vigorous intensity. Participants in this study also expressed the belief that women in their age group should be as active as their bodies allowed them to be. This suggests that older African American women may have difficulty in setting realistic physical activity goals that are consistent with evidence-based studies which have resulted in reliable health benefits. Our findings are similar to those observed by Wilcox and colleagues (Wilcox et al., 2005) who observed that the participants in their study held the opinion that frequency, duration and intensity should be chosen by the individual and not guided by an external criterion. Taken together, these

findings suggest that there is a need to more effectively disseminate information about evidence-based guidelines and recommendations for physical activity. Individuals should be aware of the amount of physical activity needed per week in terms of frequency, duration and intensity in order to achieve substantial health and quality of life improvements. It is important to note that older adults and individuals who are less familiar with physical activity and exercise practices may have difficulty in understanding technical terms such as “moderate or vigorous intensity”. In our study, women participating in both active and sedentary focus group discussions expressed concerns that older African American women may not understand what moderate or vigorous intensity activities mean. Therefore, caution is warranted when developing public health information that addresses these topics in this population.

Part of the challenge for public health professionals is deciding when would be the best time to raise the issue of physical activity intensity. When sedentary individuals first begin to be more active an overly strict emphasis on intensity may result in newly active persons becoming discouraged and falling back into prior sedentary habits. For these reasons many public health and physical activity professionals are reluctant to bring up the issue of intensity too early. Within the public health arena, more research is needed around when and how best to introduce issues related to physical activity intensity when communicating with the general public. To date, public health information materials have focused more on mode, frequency and duration of physical activity, with less emphasis paid to issues of exercise intensity.

The second theme emerging from the voices of the women participating in this study was “My Challenges”. This theme is related to factors working as impediments that detract from physical activity among the older African American women in this study. Our findings

suggest that both active and sedentary women viewed barriers to physical activity similarly. However, some differences between groups were observed. For example, the active group of women perceived psychological stress as a barrier to physical activity more than sedentary women who were more likely to mention physical health concerns. In addition, lack of safety in the neighborhood in terms of poor infrastructure (i.e. poor lightening at night and cracked sidewalks) was perceived to be more salient by the active group. The inactive group perceived lack of safety in the neighborhood mostly in terms of fear of crime and violence. Lack of safety in the neighborhood (i.e. cracked sidewalks, poor lighting and perceptions of danger) was reported to be a factor that negatively affects physical activity participation. However, it is important to investigate whether these perceptions are grounded in reality. In 2013, the city of Champaign conducted a series of “neighborhood walkabouts” to understand how the neighborhood impacts pedestrian behavior. A team composed of city employees and elected officials walked through 4 out of 8 neighborhoods and found that some positive features promoted walking in the neighborhoods, other factors negatively impacted residents willingness to walk to and from schools and work, or for leisure. Poor sidewalk conditions, including narrow, cracked and damaged surfaces as well as the absence of curb cuts were some of the features observed by the team. In Urbana-Champaign the most heavily trafficked streets are illuminated with lamps owned and maintained either by Ameren Illinois or by the cities themselves. However, a number of neighborhoods have inadequate or non-existent lighting. This is a concern for residents and constitutes a challenge for the neighborhoods because the cost of upgrading lighting is normally done through a special tax assessment.

The perception that Champaign-Urbana neighborhoods can be dangerous is corroborated by crime statistic data. Compared to eight nearby cities, Champaign is the

second more dangerous city and Urbana is the fourth. For instance, the violent crimes rate in Champaign is more than twice the average observed in the State of Illinois; in Urbana, the rate is slightly lower the State level. Taken together, there is reason to believe that the presence of negative perceptions about neighborhood safety reported by the women in this study is not merely a perception but is something frequently experienced. The challenges discussed in this theme relate to both individual (central) and more distal (community) levels of the Socio-Ecological Model of Health Behavior.

The third theme emerging from the voices of the women participating in this study was “My Friend, Family and Community”. This theme describes factors that serve as facilitators to physical activity for the older African American women in this study. This theme showed that the community can serve as a powerful support network for individuals wishing to change their behaviors. Taken together, second and third themes suggest that both individual and community factors are important determinant for physical activity. Both individual and community factors can serve as facilitators and barriers and that the differences between active and sedentary individuals depend on how they interpret the complexity of the world around them. The factors observed in this study to influence physical activity choices are similar to those observed in numerous studies conducted in comparable and different populations (Belza et al., 2004; Mathews et al., 2010; Siddiqi et al., 2011). Recently, Siddiqi and colleagues (Siddiqi et al., 2011) conducted a literature review of qualitative studies that explored barriers and facilitators to physical activity among African American adults. The authors observed similar factors negatively and positively influenced physical activity participation compared to our study. However, in contrast to our study, Siddiqi and colleagues (Siddiqi et al., 2011) observed that physical health was perceived to be a barrier to physical activity and that mental health/stress was found to be a facilitator in

their study. In our study, we observed that both physical health problems and recurrent psycho-emotional stress faced by African Americans were barriers for becoming more active. Such a difference may be partially explained by the fact that the findings from the Siddiqui and colleagues study came from a different sample of African Americans with a distinctly different background compared to the sample investigated in this study. It is important to highlight, that barriers and facilitators to physical activity are extremely difficult to compare between studies. While some studies have used a quantitative approach based on questionnaires or a list of statements (Booth, Bauman, Owen, & Gore, 1997; Gobbi et al., 2012; Rasinaho, Hirvensalo, Leinonen, Lintunen, & Rantanen, 2007), others have adopted qualitative approaches employing different methods for data collection, i.e. focus groups, interviews, participatory approach (Belza et al., 2004; Mathews et al., 2010; Siddiqui et al., 2011) to examine the factors emerging from participants' voices. Siddiqui and colleagues (2011) in their review identified at least four different types of experimental design with focus groups being the most prevalent among older adults. Therefore, differences found between our study and others could be partially explained by the study design adopted, methods of data collection employed and sample characteristics observed which may affect what type of information the study gathers.

A further goal of this study was to explore the reaction of participants to current public health materials used to educate the general public about physical activity. The following three sets materials used to promote physical activity were provided to sedentary and active focus groups for their review; the Physical Activity Guidelines from the Center for Disease Control and Prevention, "Be Active Your Way" from the Department of Health and Human Services and the brochure "Physical Activity & Exercise" from the National Institute of Health.

After analyzing the data from both the active and sedentary focus group transcripts, two themes emerged: “We May Have Trouble Reading It” which addressed concerns regarding language and “It Does Not Reflect Us” which addressed concerns regarding the examples used in the materials. This study found that in terms of clarity and content, the “Physical Activity & Exercise” brochure, followed by the “Be Active in Your Way” brochure were the preferred materials for the participants in both groups. Importantly, active and sedentary focus group reported that the language used in the materials may have been too complex and therefore may have detracted from individuals’ clear understanding of the content. Since these messages are used to inform the general public about physical activity and exercise and to empower them through knowledge, the purpose may not be being achieved. Knowledge is considered an individual determinant that may have an influence on behaviors (Dishman, 1982). Knowledge and beliefs are factors aggregated into the most inner level of the Socio Ecological Model of Health Behavior (Crosby et al., 2013; Stokols et al., 1996).

Participants from both groups reported that many of the examples used in the public information materials do not reflect the reality of older African Americans. Apparently, the legacy of segregation, racism, discrimination and factors such as economic issues highly stressed in the health disparity literature (Gaskin et al., 2005; Gee & Payne-Sturges, 2004; Williams & Jackson, 2005; Williams & Mohammed, 2009) limit African Americans from identifying with many of the examples described in the materials. This is consistent with the suggestions made by studies conducted by Williams and colleagues to explain racial disparities in health within the African American community (Williams & Jackson, 2005; Williams & Mohammed, 2009). According to the authors, numerous factors, such as, residential segregation, inequalities in the neighborhoods, socioeconomic circumstances

and medical care are important in perpetuating racial disparities in health. In our study, unfair socioeconomic circumstances and the perception of lack of safety were found to be barriers for some participants, detracting from their physical activity. These findings constitute important information for public health policymakers and other health professionals that may help in the elaboration of more culturally sensitive messages and programs aimed at promoting physical activity within this population. The way information/content and materials are currently presented appears to have a negative effect on accessibility, acceptance and receptivity of messages. Apparently, not only language but also the difficulty the older African American women experienced in visualizing themselves carrying out many of the activities may have been barriers to receiving and interpreting messages used to promote physical activity. This may have contributed to lower rates or no engagement in physical activity observed in the African American community, particularly in older African American women. Messaging is an important component of health promotion and the creation of physical activity messages that take into consideration the culture, traditions, and preferences of a given population may help in mitigating racial and ethnic health disparities. In fact, researchers have noted the importance of matching the cultural characteristics of minority populations with public health interventions in order to enhance receptivity, acceptance and salience of health information and programs. Belief systems, religious and cultural values, life experiences and group identity are considered powerful filters through which information is received (Thomas et al., 2004). It highlights the importance of cultural sensitive interventions towards health, including physical activity, as a possible mean to break the health disparity cycle, to reduce health inequalities and enhance quality of life in at risk populations.

The qualitative data analysis in the present study was conducted employing a hybrid approach where the primary goal was to conduct an inductive analysis of the data in order to identify themes that emerged from the compilation of the photos and interview transcripts. As a second goal, a deductive analysis was conducted in order to determine the degree to which our findings were consistent with the predictions of the Socio Ecological Model of Health Behavior (Stokols et al., 1996) as well as with elements of the health disparity literature. The Socio Ecological Model of Health Behavior suggests that there are multiple levels of factors influencing an individuals' behavior, i.e. individual, interpersonal, organizational, community and policy. Socio-ecological models are effective for the understanding of complex behaviors such as physical activity (Crosby et al., 2013). In fact, socio-ecological models provide a comprehensive framework to understand behavioral changes without losing specificity at any level of influence. Socio-ecologists argue such models are needed to describe a complex dynamic in which inter-level relationships influence each other in a reciprocal manner (Spence & Lee, 2003). By understanding these relationships, it is possible to create interventions and strategies that may result in more active communities (Stokols et al., 1996). Because of the many factors that place African Americans at a disadvantage relative to others in the community, in our study we chose to supplement the Socio Ecological Model of Health Behavior with a number of theoretical perspectives that have emerged from the health disparity literature. Sociologists have stressed two important variables that help understanding racial inequalities regarding health. The first of these is class disparity which encompasses income level, occupation and educational attainment. The second of these is psychosocial stress caused by the legacy of segregation, discrimination and racism (Kawachi, Daniels, & Robinson, 2005). This study found that both economic issues and psychosocial stress due to life conditions may be



hindering older African American women from being more active. Economic issues have been consistently reported as barriers to physical activity (Gobbi et al., 2012; Reichert, Barros, Domingues, & Hallal, 2007). Financial costs were found to be a barrier to physical activity in African Americans in a multicultural study conducted by Mathews and colleagues (Mathews et al., 2010).

Psychosocial stress has been used by sociologists primarily to understand disparities in diseases and conditions and access to and type of care received. Physical activity participation has been much less frequently studied. Our study suggests that in addition to the Socio Ecological Model, insight can be gained by considering frameworks/theories that focus on the specific characteristics of a population under study. It is not clear whether factors such as discrimination and life history, etc. alter how the Socio Ecological Model applies in different groups. Future research should explore whether the interactions among levels of the social ecological model are impacted by the disproportional burdens faced by many African Americans also in terms of difficulties in engaging in physical activity. Acknowledging the well-known benefits of physical activity in the prevention, promotion and maintenance of health, understanding how older African American women perceive physical activity and factors influencing such behavior in this population is of a great importance.

The findings of this study suggest that either public health messages aimed to educate the general public toward physical activity are not reaching this population, or that they are not being clearly understood. Some participants in both groups did not know how much physical activity is needed for health benefits. Others, despite having a good understanding of frequency and duration, did not mention anything about intensity. Furthermore, the focus group analysis showed that African Americans may have some difficulty clearly interpreting

and/or understanding some of the messages used to promote physical activity because of the difficult language used and the technical terms employed. Furthermore, they have difficulty visualizing themselves performing many of the examples used in the messages. However, a question that remains is: what is the likelihood of these materials reaching this population? The fact is that it is very unlikely that the materials used to promote physical activity and used during the focus group discussion will be read by this population. Although all of them can be freely accessed in the internet, very few women at their age have the necessary skills to operate a computer or navigate in the internet. Moreover, they are very unlikely to have the motivation to search for this type of information. Thus, the chances of being exposed to these materials are very slim. In fact, during the focus groups discussion, none of the women reported having ever seen the materials. Consequently, it is necessary to develop ways to make this information available to this population. One possible way could be having information about health living printed and distributed in places that are known to have a high concentration of African Americans, e.g. churches and local community centers. However, before this is done it is important to consider both the positive and negative factors raised by the older African American women in this study regarding such materials.

## **5.2 Implication for Public Health Practice**

The findings of the present study constitute important information for public health practice. This study is one of relatively few on this topic and the findings may be helpful for promoting physical activity among older African American women. Studies of this nature are important because minority groups 65 years and older are exponentially growing in the United States. For instance, the proportion of African Americans over 65 will increase from 9

to 12% by 2050. In view of the findings, action will be needed from different sectors if we are to increase physical activity levels among older African Americans. Mitigation of both physical health and mental stress will require concerted action in the primary care arena. Additional action plans will be needed from cities and municipalities as well as transit authorities in order to alleviate problems with infrastructure such as sidewalks and heavy traffic. Moreover, action needs to be conducted in order to reduce the fear of violence in some neighborhoods. In addition, access to no or low cost facilities needs to be provided in order to encourage participation in physical activity. Many African Americans live on a fixed income, and prices of memberships in gyms and recreation centers prevent them from joining. Currently, a very low rate of African Americans, especially older African Americans, engages in sufficient physical activity to achieve health benefits. As noted by Williams and Jackson (Williams & Jackson, 2005) health and health disparities are embedded in larger historical, geographic, sociocultural, economic, and political contexts. Therefore, changes in a broad range of public policies are needed to effectively address these systemic and ongoing disparities.

### **5.3 Strengths and Limitations of the Study**

The present study employed a mixed-method approach involving a community-based participatory technique known as photo-elicitation supplemented by in-depth interview along with an objective assessment of physical activity to enhance the understanding of physical activity in older African American women. An important aspect of photo-elicitation is not so much what was photographed but rather the reasons for selecting a particular content and the relationship between the selection and the behavior/phenomenon being investigated. This study was certainly enhanced by the use of

photo-elicitation. Distinct from other methods of data collection (e.g. interview only or focus groups), this technique helped in breaching the communication impasse, bridging geographical and cultural gaps between investigator and participants, and making participants feel more aware of and responsible of their role and importance in the study. Additionally, the use of photo-elicitation allowed for the collection of more complete data compared to that obtained by using “words” only because the information elicited generated insights that do not necessarily or exclusively correspond to those obtained in verbal inquiries. The polysemic quality of images, i.e. the fact that they have many potential meanings and interpretations is a key point in this technique. Furthermore, the use of photo-elicitation allowed triangulation between different information sources, which helped in providing deeper insights into the research findings.

The combination of both qualitative and quantitative approaches is a promising research design for in-depth understanding and unveiling research problems in individuals’ natural settings and communities by producing more meaningful and useful information. Studies employing qualitative approaches have the advantage of understanding attitudes, beliefs and values pertaining to health behavior within the context of their natural setting. Although important, our findings must be interpreted with care due to the following limitations. Qualitative research has its limitations, such as the inability to generalize findings to a reference population, (i.e. the general population of older African American women living in the United States). The sampling process in qualitative studies is different than quantitative research in that a representative sample is not sought but rather a purposeful sample is selected in order to obtain and provide rich data when examining a specific phenomenon. Our study was based on women living in a small town, relatively well educated, with a reasonable annual income. We do not know if the patterns that emerged

would have differed if a different cohort of African American women were selected. Accordingly, caution is warranted when generalizing/transferring the outcomes to the broader population of older African American women.

#### **5.4 Suggestions for Future Studies**

Older African American women are a vulnerable group for physical inactivity and resultant chronic diseases. Quantitatively, a comprehensive amount is known about correlates of physical activity in different populations and it has helped in building the evidence base for public health initiatives. However, little is known about underserved groups such as African Americans, who are among the most inactive segments of the population. There is a growing interest in examining factors influencing physical activity among minority groups. The challenge now is to operationalize and test social ecological models in conjunction with health disparity elements, especially to evaluate the effectiveness of multilevel interventions among African American women. Moreover, examining cross-cultural differences pertaining perceptions of physical activity between various racial/ethnic groups is an area that clearly warrants further examination. This study provides new information, but also corroborates the findings of previous studies about factors influencing physical activity among older African American women that may help in the development of culturally sensitive interventions. Future studies should try to duplicate these findings in a cohort with different socio-demographic characteristics, such as low income and low educated older African American women.

## 5.5 Conclusions

This study was conducted to explore the understanding of physical activity in older African American women and factors that contribute to their decision to be physically active or sedentary. In addition, this study explored perceptions and reactions to current public health materials used to educate the general public towards physical activity. For the first part of this study, three major themes emerged; (1) What does physical activity mean to me, (2) My challenges and (3) My friends, family and community. For the second part to the study, two major themes emerged; (1) We may have trouble reading it, and (2) It does not reflect us. The factors that emerged as influencing physical activity among older African American women were consistent with the levels of the Socio Ecological Model of Health Behavior and consistent with some elements of the health disparity literature. An important finding from this study relates to the knowledge and beliefs of older African American women regarding the amount of physical activity they need. It was observed that participants lack important information regarding physical activity (i.e. intensity for health benefits).

The findings inform us about some of the ways active and sedentary groups are similar. Socio-demographic variables, health characteristics, or factors influencing physical activity about such behavior cannot be used to explain why one group is active and another is sedentary; since both groups are similar for these variables. However, objective physical activity data collected through accelerometer shows that some participants are achieving the physical activity recommendations and some are not. Although we do not have clear evidence from our results on why this is the case, the accelerometer data shows that somehow, the active group have been find ways to overcome barriers and make use of opportunities available to them to build physical activity into their daily lives. On the other

hand, the sedentary group either may be struggling to overcome barriers or may perceive more barriers compared to the active group. Additionally, the sedentary group may not be fully aware of the whole range of possibilities for being active. That could be a partial explanation on why sedentary older African American women are not reaching the physical activity recommendation. Therefore, presenting this group with broader range of option that can be used to build physical activity along with the testimonial of active people that have the same characteristics and background as the sedentary groups may be a way to increase physical activity level in this group and should be a public health priority.

Focus group conversations about the materials used to educate and motivate the general public about physical activity suggest that they need to be modified to better speak to our participants. These adjustments not only apply to the level of language but also to the cultural relevance of the material. The findings of this study contribute to our understanding of physical activity among African Americans and provide important guidance for public health intervention and practice. Future efforts to develop and sustain active communities need to take into account the socio-cultural environment in which individuals reside. Effective interventions should operate on multiple levels to provide access to safe and convenient places for physical activity; implement interventions programs to encourage utilizations of facilities while taking into consideration and advantage of the socio-environmental context. This study found that the older African American women participants are knowledgeable about the benefits of physical activity and have a good understanding of the amount needed, yet important barriers on different levels appear to detract and hinder their ability to maintain an active lifestyle. To effectively promote physical activity among older African American women, targeted interventions will need to address barriers at multiple levels.

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## APPENDIX A

### Individual Interview Guide

#### A. Individual level

**Broader question:** What does living healthy mean to you?

- What does physical activity means to you? Is physical activity the same as exercise?
- How important is physical activity to you? To your health?
- How much physical activity should a woman your age do?

#### B. Relationship level (family; social network, etc.)

**Broader question:** Is there anything special or different about health in African American families?

- Tell me about your role in your family?
- Do you try to help members of your family stay healthy? How?
- Is physical activity something common among your family members?
- In what ways do you think your family, friends encourage or discourage you to be more active?

#### C. Community level

**Broader question:** How do you feel about your neighborhood?

- Tell me about your neighborhood.
- Is it easy to be physically active in your neighborhood? What makes it easy? What makes it hard?
- Are there any groups or programs in your neighborhood that promote health and physical activity?
- Has anyone ever told you about how much physical activity you should do? Have you ever discussed this with your doctor or nurse?

#### D. Elements of Health Disparities

**Broader question:** There are several studies suggesting that African Americans are more vulnerable to diseases because of many different factors, such as lack of public resources nearby their neighborhood, higher level of psychosocial stress throughout life, economic issues, etc. Could you comment on this based on your life experiences?

- Could you tell me if any of the mentioned factors **[repeat to the participant the factors]** affect your willingness to be physically active? How?
- During the summer time, for example, you decide to go to a park or any other green area for a walk. How far or how close do you have to go? How would you get there? Bus, car, bicycle, walking? Would you call a friend or relative to join you? Why, or why not?
- Now think about the winter time. What are some options you have available to you, except at your house, to exercise; to walk; to meet with your friends or relatives?
- Tell me about your close friends. Are they physically active in your opinion? Would be okay for you to join them? Why, or why not?
- There are several government health recommendations that are based on scientific and medical research. What are your feelings about medical research?
- Many experts say that physical activity can be used to treat different diseases. What do you think about that?
- The current government guidelines recommend that older adults should do at least 2 hours and 30 minutes of physical activity per week. How do you feel about that?

## **APPENDIX B**

### **Focus Group Discussion Guide**

- What are the brochures talking about?
- How did you feel after read these messages?
- Are the messages clear to you?
- Did anyone feel the messages somehow confuse? Difficult to be understood?
- Which of those are easier to understand? Which is the most difficult?
- Now think about older African American women in general. Would they be able to understand the message?
- What are some of the things we need to change, if any, in order to make the message clear to all?